Health Benefit Design Options

FOR ALBERTA HEALTH & WELLNESS

Aon Consulting

AON

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Executive Summary
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This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Contents

1. Project Scope
2. Conceptual Models
3. Key Concepts
4. Prescription Drugs
5. Continuing Care
6. Non-Emergency Health
7. Supplemental Health
8. Economic Model
9. Final Comments

Project Scope

- Develop health insurance models for each of the following:
  - Prescription drugs
  - Continuing care
  - Non-emergency health care
  - Supplemental health products and services

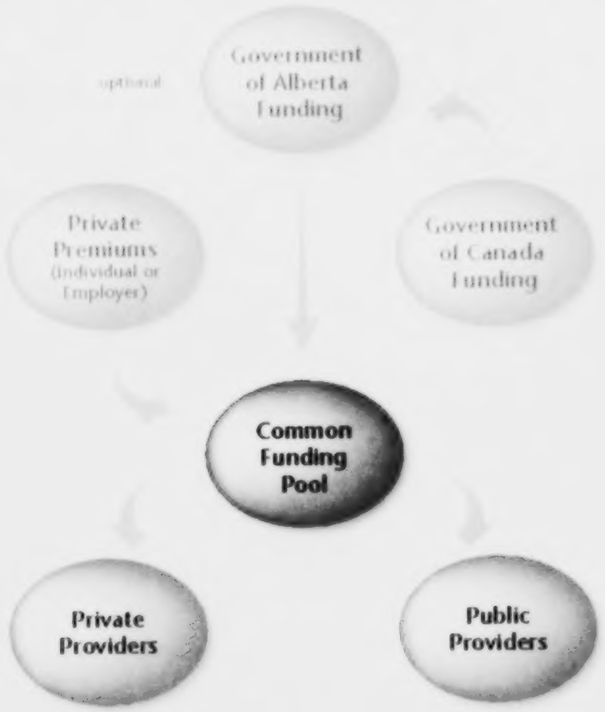
- Each group of health care services interacts differently with each conceptual model
- Evaluation criteria based on insurance plan's promotion of:
  - Personal responsibility
  - Efficiency
  - Cost control

Conceptual Models

Conceptual Models Reviewed

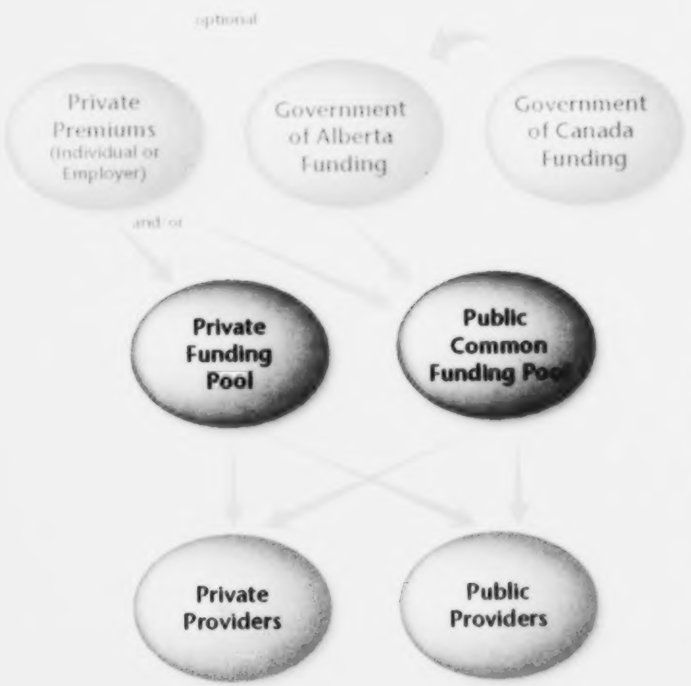
1. Mandatory Public Health Insurance
2. Mandatory Public Health Insurance with Optional Private Supplemental Coverage
3. Mandatory Public Health Insurance with Optional Private Replacement Coverage
4. Mandatory Private Health Insurance with Public Premium Pooling
5. Mandatory Private Health Insurance
6. Optional Private Health Insurance

Mandatory Public Health Insurance


optional
Government of Alberta Funding
Private Premiums (Individual or Employer)
Government of Canada Funding
Common Funding Pool
Private Providers
Public Providers

- Provide health insurance through a publicly run insurance plan
- Set up plan as any private insurer would, but run by Government of Alberta
- Premiums may be income and/or cost based (i.e. a flat fee)
- Use individual risk ratings to set premiums, or a community rating of the entire population
- Where premiums have a flat fee, the government could make payments on behalf of low income earners

Mandatory Public Health Insurance
Optional Private Supplemental Coverage



optional

Private Premiums (individual or Employer)

Government of Alberta Funding

Government of Canada Funding

and/or

Private Funding Pool

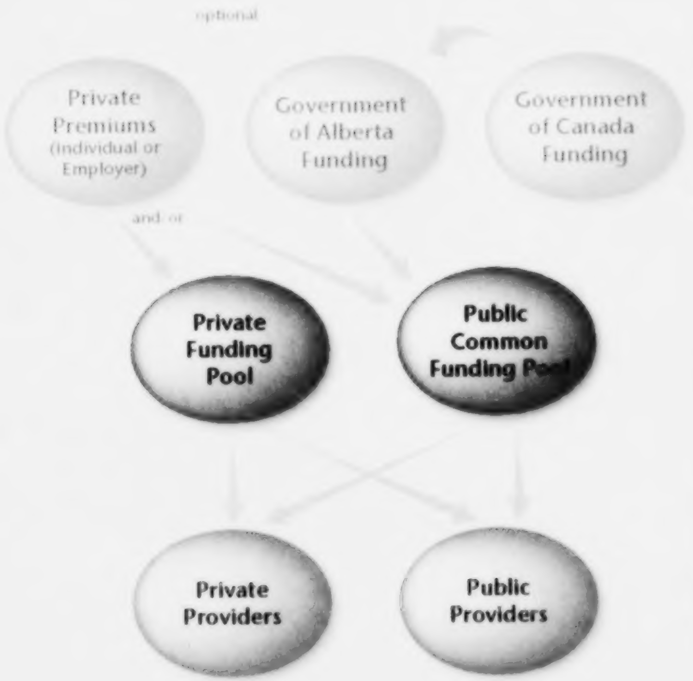
Public Common Funding Pool

Private Providers

Public Providers

- Choice in health insurance:
  - Mandatory health insurance via publicly run insurance plan
  - Optional private insurance as a supplement to public insurance
- Premiums may be income and/or cost based
- Where premiums have a flat fee, the government could make payments on behalf of low income earners
- Private plans require regulation and oversight for solvency levels
- Private plans may require:
  - Community rating; or
  - More likely, individual premiums based on health risk assessments

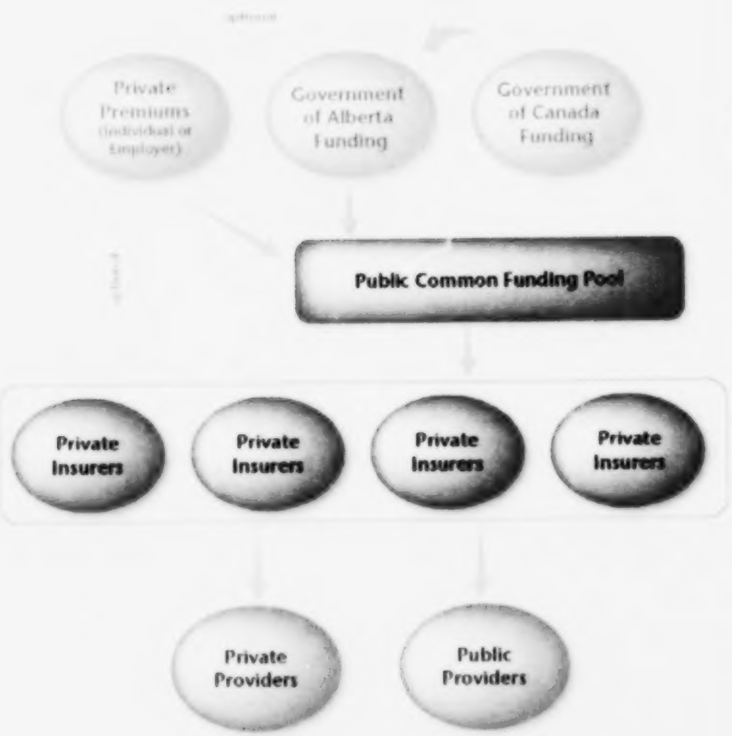
Mandatory Public Health Insurance
Optional Replacement Coverage


optional
Private Premiums (individual or Employer)
Government of Alberta Funding
Government of Canada Funding
and/or
Private Funding Pool
Public Common Funding Pool
Private Providers
Public Providers

- Choice in health insurance:
  - Mandatory health insurance via publicly run insurance plan
  - Optional private insurance as a replacement (opt-out) to public insurance
- Premiums may be income and/or cost based
- Where premiums have a flat fee, the government could make payments on behalf of low income earners
- Private plans require regulation and oversight for solvency and coverage levels
- Private plans may require:
  - Community rating; or
  - More likely, individual premiums based on health risk assessments

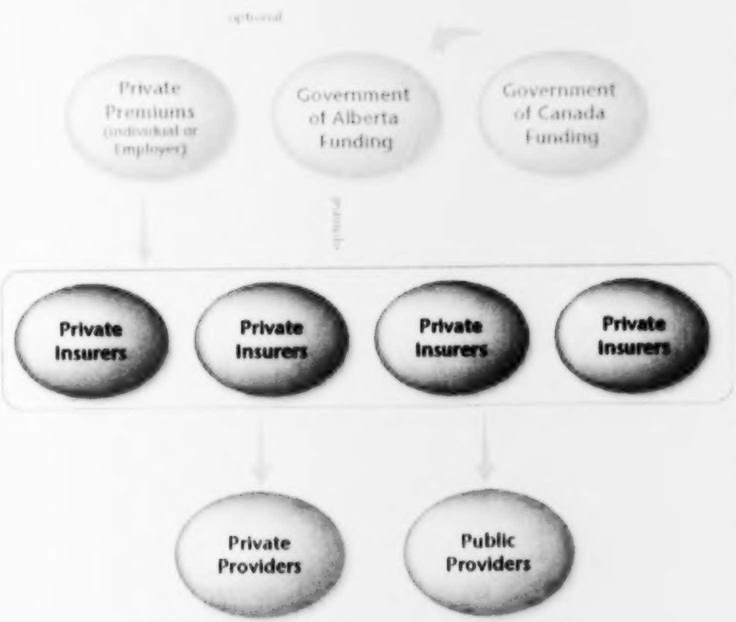
Mandatory Private Health Insurance

Public Premium Pooling


optional
Private Premiums (Individual or Employer)
Government of Alberta Funding
Government of Canada Funding
optional
Public Common Funding Pool
Private Insurers
Private Insurers
Private Insurers
Private Insurers
Private Providers
Public Providers

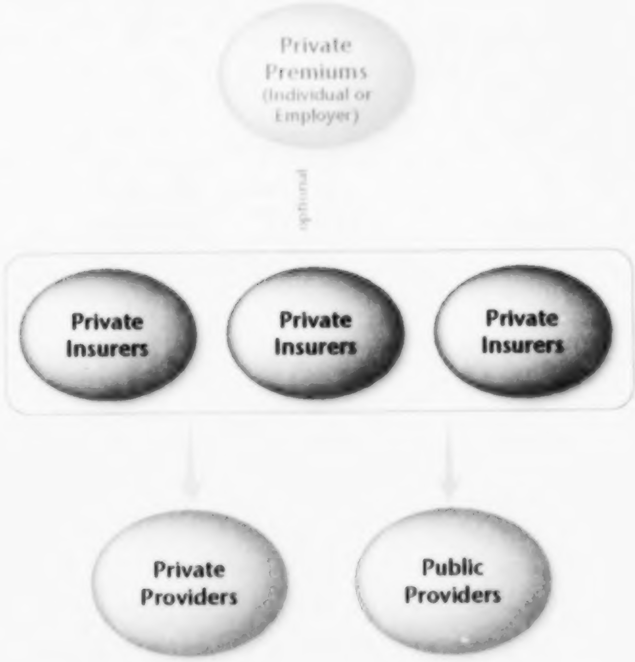
- Universal coverage and funding through common funding pool
- Choice between private insurers may offer multiple plans that meet a minimum standard of coverage
- Insurers paid for basic coverage from common funding pool
- Additional coverage may be purchased to supplement the basic plan with a higher level of health- related services
- Private plans require regulation and oversight for solvency and coverage levels

Mandatory Private Health Insurance


optional
Private Premiums (individual or Employer)
Government of Alberta Funding
Government of Canada Funding
Private Insurers
Private Insurers
Private Insurers
Private Insurers
Private Providers
Public Providers

- Mandatory coverage required
- Payments to insurers directly from private parties (individuals or employers)
- Where required for social policy, payments made by government on behalf of individuals
- Private insurers may not be able to provide 'reasonable' rates if liability for future claims is unlimited
- Private insurers may offer multiple plans that meet a minimum standard of coverage, increasing the level of choice
- Risk pooling may be necessary to allow insurers to provide coverage to high risk individuals
- Additional coverage may be purchased to supplement the minimum regulatory requirements with a higher level of health-related services
- Private plans require regulation and oversight for solvency and coverage levels

Optional Private Health Insurance



Private Premiums (Individual or Employer)

optional

Private Insurers

Private Insurers

Private Insurers

Private Providers

Public Providers

- Coverage is optional and may be obtained from any private insurer in the market
- Currently this is the type of coverage often provided by employers for drugs and supplemental health care
- Regulation is generally limited to solvency for this model

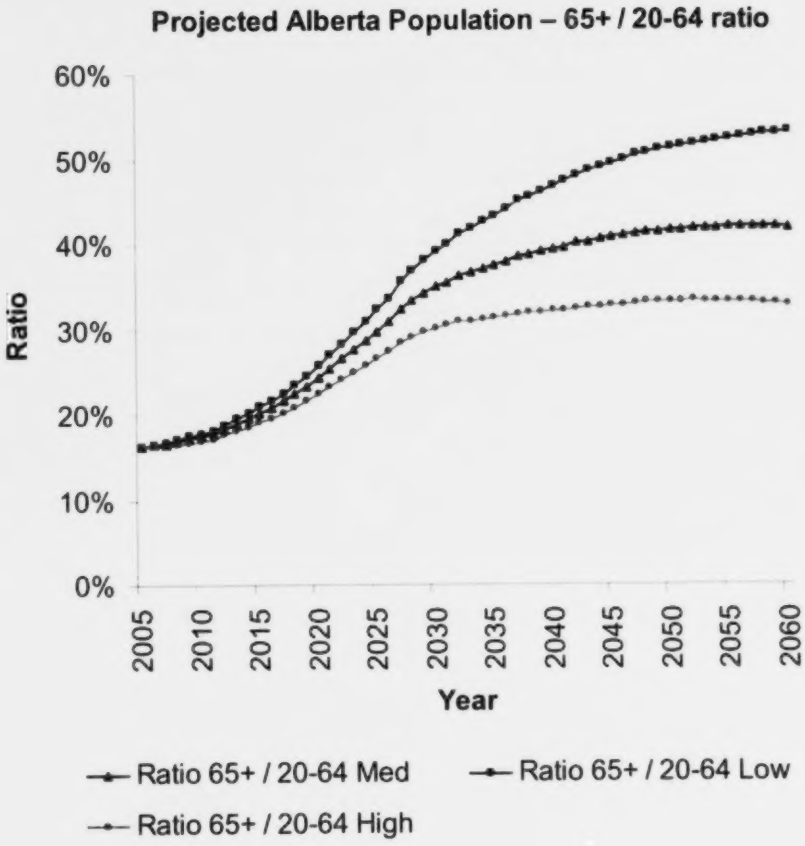
Key Concepts

Aging Population

- Number of workers per retired person will decline substantially by 2050:

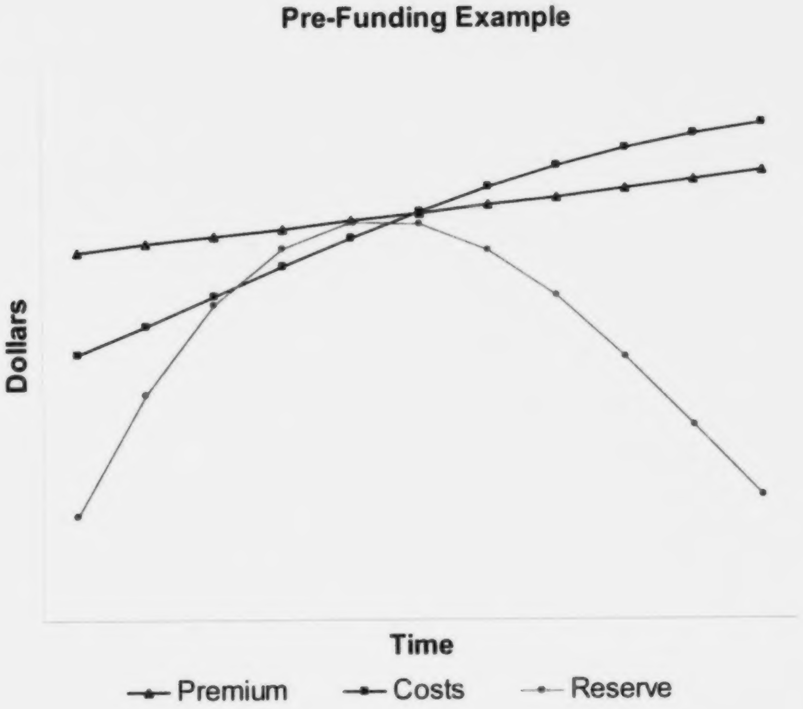
Current	5.2
Low population	1.9
Medium population	2.4
High population	3.3

- Per capita cost of health care increases as the population ages
- Fewer workers reduce provincial revenue growth associated with employment, hence sustainability of health care is threatened if health care costs continue to be paid on a pay-as-you-go basis



Pre-Funding

- Saving or investment strategy that works with an insurance plan to minimize effect of:
  - Rising premiums associated with inflation
  - Increased health service utilization
  - An aging population
- Collect more through premiums than paying out, creating a reserve
- Reserve grows through investment income and additional surplus premiums
- When rising health care costs exceed the premiums collected, use reserve to pay costs, minimizing the effect of rising costs



Projection Length

- Long-term projections are required to assess sustainability as the full effects of an aging population do not occur until after 2040
- Variability in growth rates, particularly health services inflation, has enormous cumulative impact over the projection period
- Projections are linked to common assumptions where possible – ensuring consistent relative ranking of options despite variability in absolute values
- Economic model runs to 2025 – matching the length of the province's 20 year plan

Prescription Drugs

Prescription Drugs – Methodology Notes

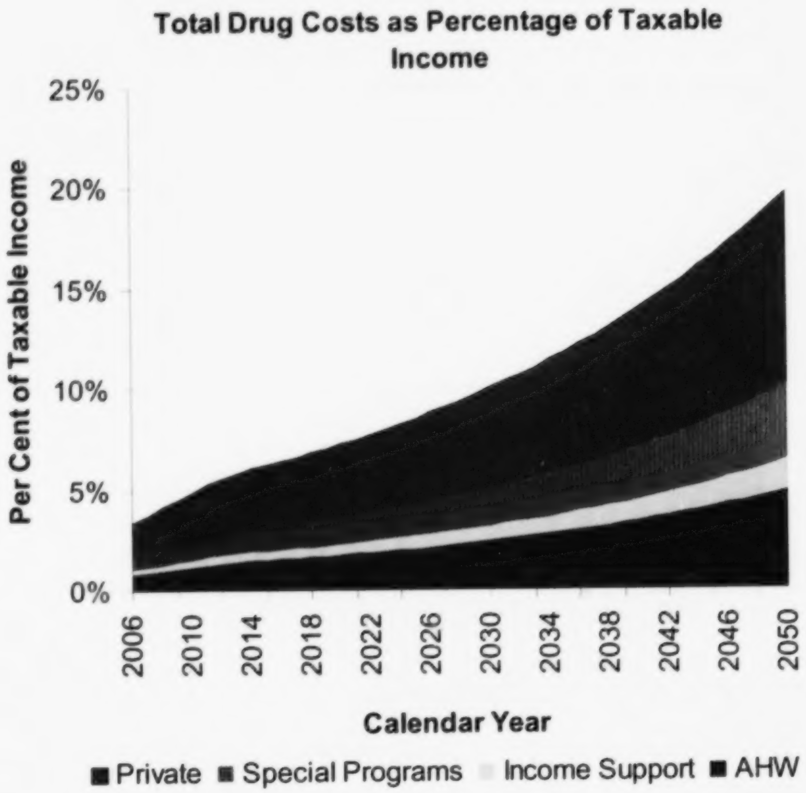
- Funded by Government of Alberta, private insurers and employers and out-of-pocket payments by individuals

Population Group	Current Cost	Population
For current beneficiaries of · **Alberta Health and Wellness** · **Alberta Human Resources and Employment (AHRE)** · **Alberta Seniors and Community Supports**	Claims costs established by therapeutic class, age and gender cell using detailed drug claims paid in Fiscal Year 2004 to 2005	Demographic composition covered by AHRE and Alberta Seniors and Community Supports corresponds to population of claimants
Employer Insured	Therapeutic class, age and gender cell costs of a large employer plan used Costs adjusted to balance CIHI data	Total population less those covered by Government of Alberta and those uninsured
Uninsured / Underinsured **(27% of population)**	Cost assumed equal to those of the average population (for the same age and gender)	Demographics derived from the Canadian Community Health Survey (CCHS)

- Inflation rates and utilization trends for each therapeutic class of drugs created taking into account the projected impact of anticipated cost control mechanisms
- Cost projections created by combining drug costs, anticipated utilization and projected population data

Adjusted Baseline Cost Projection

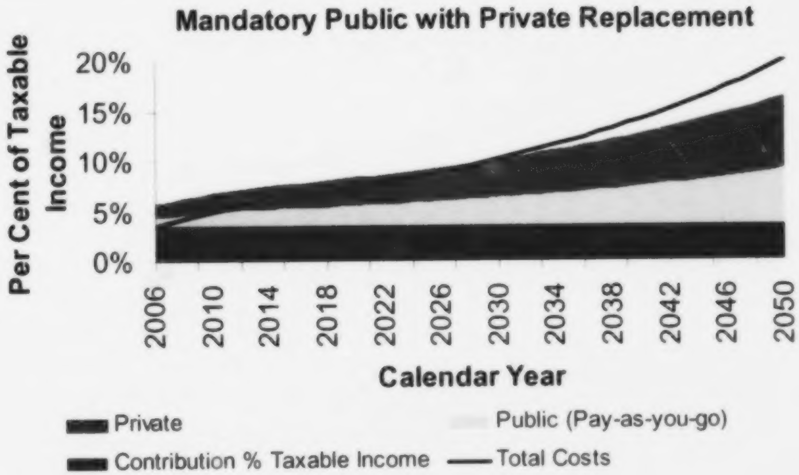
- Adjusted to assume a number of cost control mechanisms
- Otherwise the cost of prescription drugs will exceed total taxable income in 2036
- Public drug programs may be difficult to cost-effectively transfer to private insurers due to potential for large liabilities
- Using reasonable control mechanisms, costs expressed as a percentage of taxable income will more than quadruple by 2050

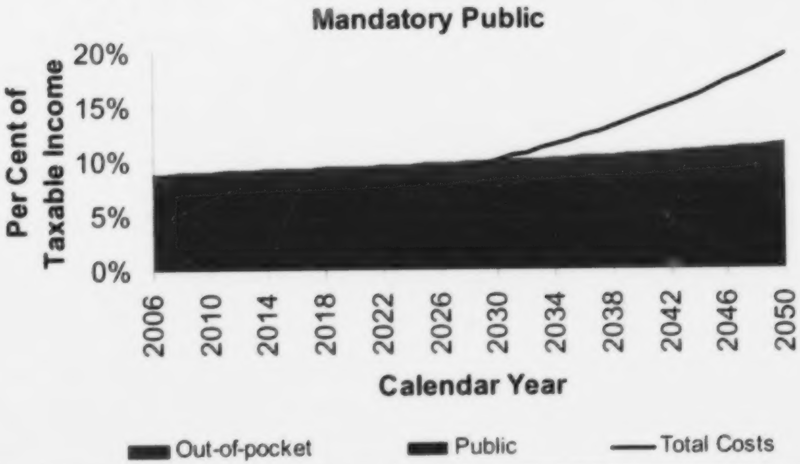


4. Prescription Drugs

Mandatory Drug Plans with Pre-Funding

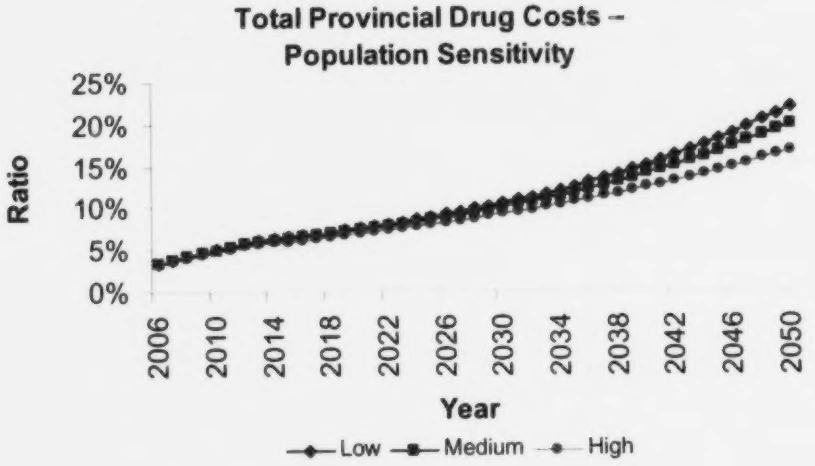
- Mandatory drug plans were selected for modelling to:
  - Ensure entire population has drug coverage
  - Prevent free-rider phenomenon where drug insurance is not taken by some of the population
- Public funding can mix pre-funding and pay-as-you-go
- Higher proportion of pre-funded costs increases the up-front burden, but reduces peak cost (relative to taxable income)
- The mandatory public with private replacement model assumed seniors and special support plans would be payable by entire population


Mandatory Public with Private Replacement

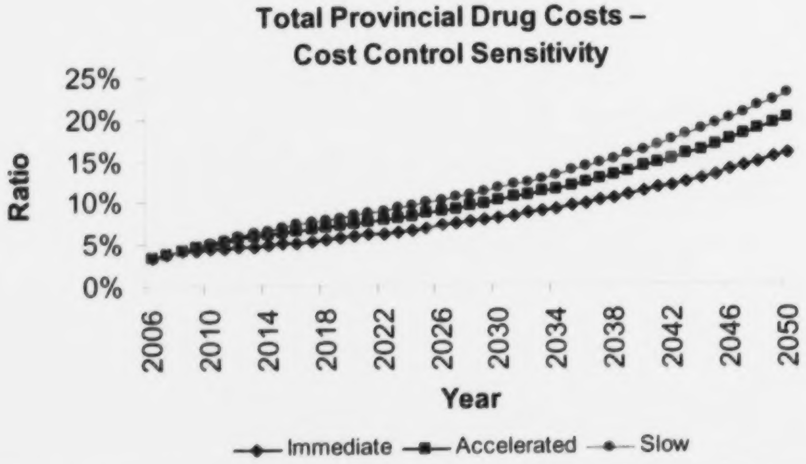

Mandatory Public

Sensitivity Testing

- Population growth and working proportion of the population has material impact on costs relative to total income, particularly after 2030 when aging effects become increasingly important


Total Provincial Drug Costs – Population Sensitivity

- Rapid implementation of cost control mechanisms has dramatic short and long term effect on drug costs


Total Provincial Drug Costs – Cost Control Sensitivity

Conceptual Model Comparison

Conceptual Model	Encourage Personal Responsibility	Efficiency	Cost Control	Choice in Coverage
Public Mandatory	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures	Single purchaser with higher buying power	Limited
Public Mandatory with Private Supplemental Coverage	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures	Single public purchaser with higher buying power	Limited for basic Higher for supplemental
Public Mandatory with Private Replacement Coverage	Contingent on plan design (premiums and cost sharing)	Strong competitive pressures for private plans (effect limited with global suppliers)	Private purchasing impacted by public cost control methods	Higher
Private Mandatory with Public Premium Pooling	Contingent on plan design (premiums and cost sharing)	Strong competitive pressures (effect limited with global suppliers) Centralized premium collection Decentralized administration	Private purchasing impacted by public cost control methods	Higher

Prescription Drugs Health Insurance Observations

- Mandatory coverage ensures everyone contributes financially for the benefit they receive
- Combination of private and public coverage allows employers to offer higher coverage where desired
- Province-wide cost control mechanisms required to control total costs
- Effect of single purchaser in setting prices is materially important
- Public mandatory insurance with private replacement coverage is similar to the model used in Quebec, therefore Canadian experience in implementation is available

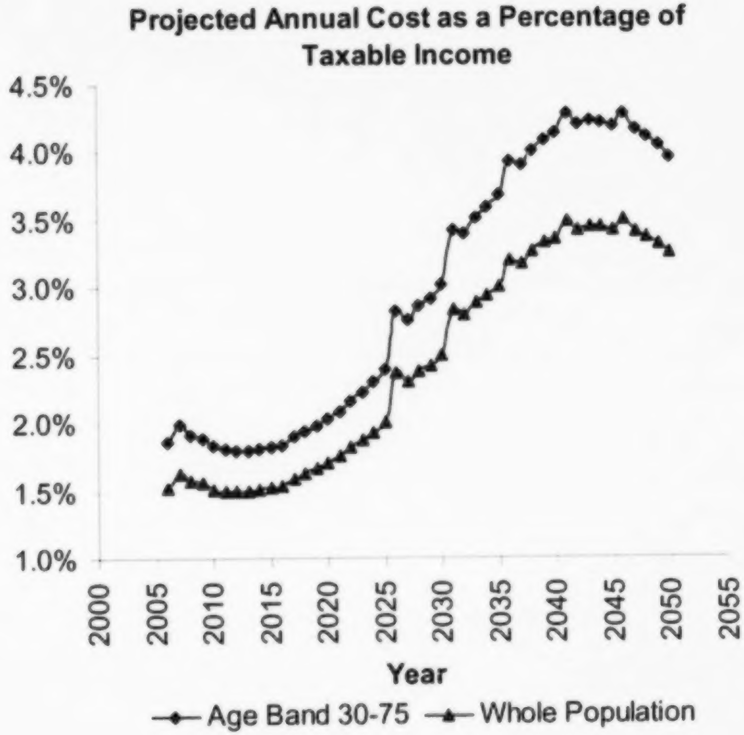
Continuing Care

Continuing Care – Methodology Notes

- Baseline projections based on Scenario 2 of Alberta Health and Wellness Regional Continuing Care Model (RCCM)
  - Assumes a "medium-shift" from facility-based services to community-based services
- RCCM cost projections were revised in the following ways:
  - Alberta Finance's medium population projection revised to reflect anticipated improvements in mortality rates
  - Unit costs inflation increased to 4% to reflect anticipated trends
  - Percentage of total funding allocated for capital expenditures increased to recognize obsolescence
  - Expected costs from implementation of "What We Heard & Draft Recommendations" produced by Task Force on continuing care incorporated
- Accommodation and care are decoupled – only the health care portion of this is modelled for insurance
- As an insurance policy, it is assumed that once a certain level of disability exists, requirement to pay premiums stops, irrespective of whether home or facility-based services are provided

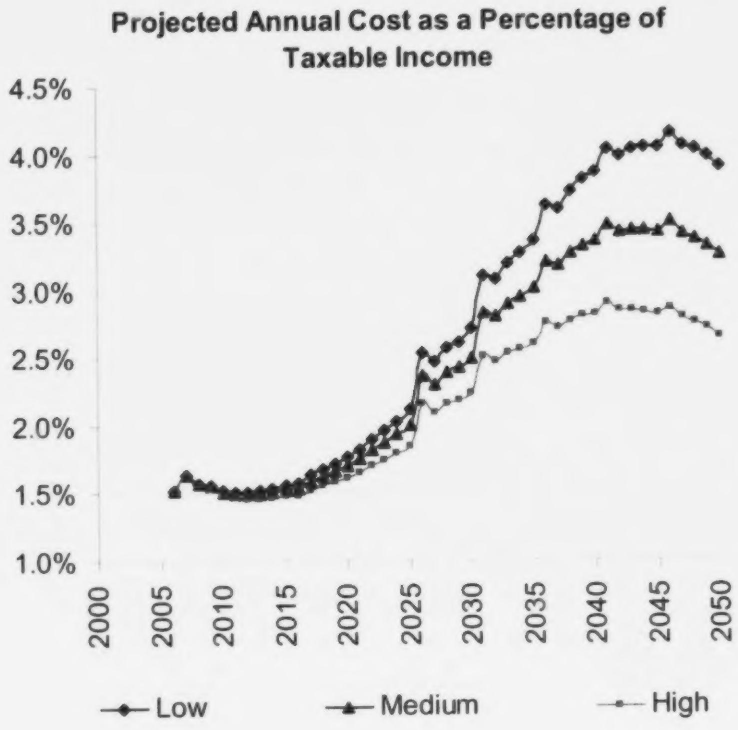
Continuing Care – Premium Base

- Spreading the cost over a portion of, or the entire population, impacts the insurance premium
- A smaller number of premium contributors will have to make a larger payment



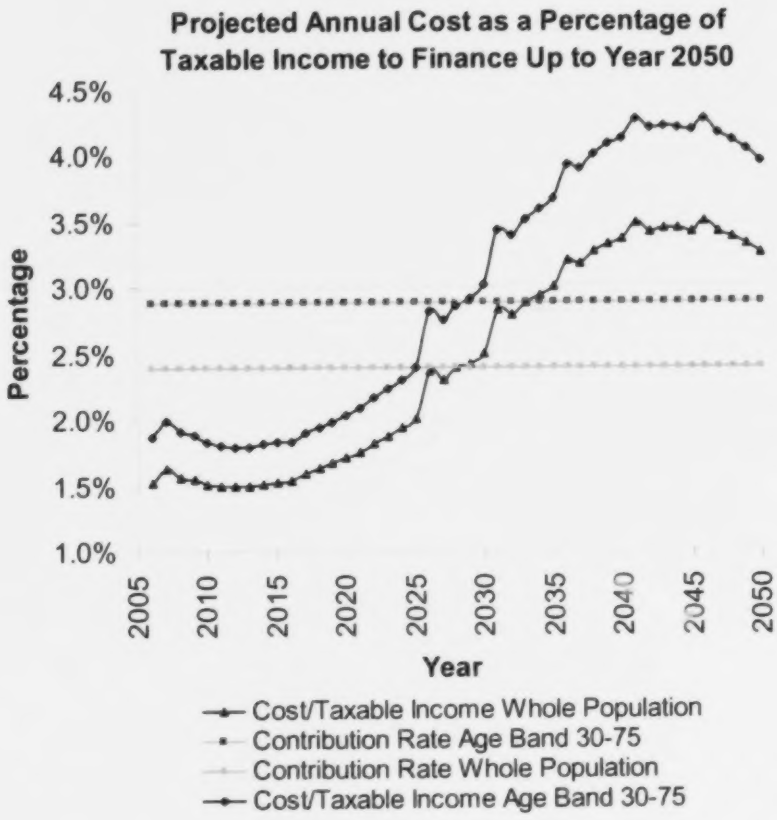
Population Sensitivity

- Aging and proportion of total population in workforce are primary drivers of cost relative taxable income
- Inflation is a material factor where health care salaries rise faster than those of general population



Continuing Care – Cost Impacts

- Total costs are relatively similar with different insurance models
- Private supplemental insurance would increase total costs on a supply and demand basis
- Uptake of existing supplemental products has been very low in Alberta and other markets (as insurers limit benefits to control risk)
- Private costs are more likely to be paid out-of-pocket as incurred
- Full or partial pre-funding is highly appropriate as cost projection factors have relatively little variance because they are largely salary driven



Conceptual Model Comparison

Conceptual Model	Encourage Personal Responsibility	Efficiency	Cost Control	Choice in Coverage
Public Mandatory	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures (depends on private providers of continuing care)	Single purchaser with higher buying power	Limited
Public Mandatory with Private Supplemental Coverage	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures (depends on private providers of continuing care)	Single public purchaser with higher buying power Limited private services with total cost set by market forces	Limited for public component Private has not had many offerings in other markets
Private Mandatory with Public Premium Pooling	Contingent on plan design (premiums and cost sharing)	Competitive pressures on cost, regulation required to ensure quality Centralized premium collection Decentralized administration	Overall total Private Mandatory costs determined by the public pool funding Costs for enhanced insurance policies are supply/demand driven	Possibly more coverage; dependent on regulatory requirements

Continuing Care Insurance Observations

- Pre-funding is a continuing care savings plan for an aging population:
  - Requires mandatory participation
  - Premiums linked to income limit inflation risk
- Insurance options have less impact on cost than operational improvements
  - Both are smaller than the aging effect

Non-Emergency Health

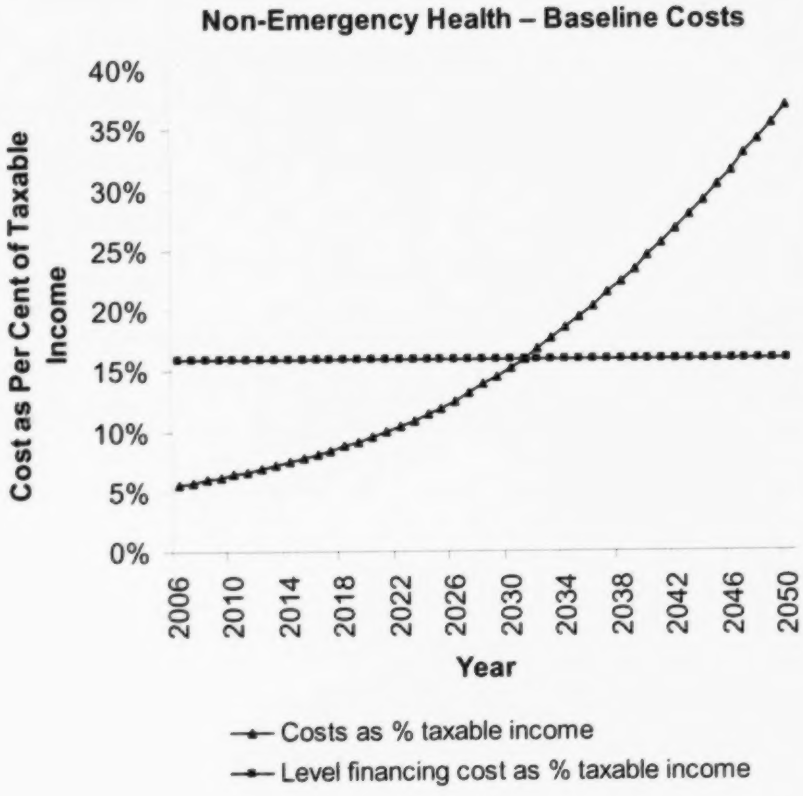
Non-Emergency Health – Methodology Notes

- All non-emergency health services are funded by Alberta Health and Wellness
- Non-emergency services not a separate category of services
- Protocol created to identify services that would be considered non-emergency for purposes of the analysis
- Used nationally recognized triage score for emergency room visits to differentiate emergency from non-emergency
- Scores of one or two with treatment regarded as emergency; falls outside the scope of the analysis
- All other treatments considered in the analysis of non-emergency services

- Per capita claims rates developed directly from Alberta Health and Wellness data
- Annual projection factors developed from public sources
- After ten years, initial factors were reduced to 6% per year under the mandatory public scenario (or actual factor if already less than 6%)
- Resulting per capita claims multiplied by projected population in each future year
- Generated projected future annual claims

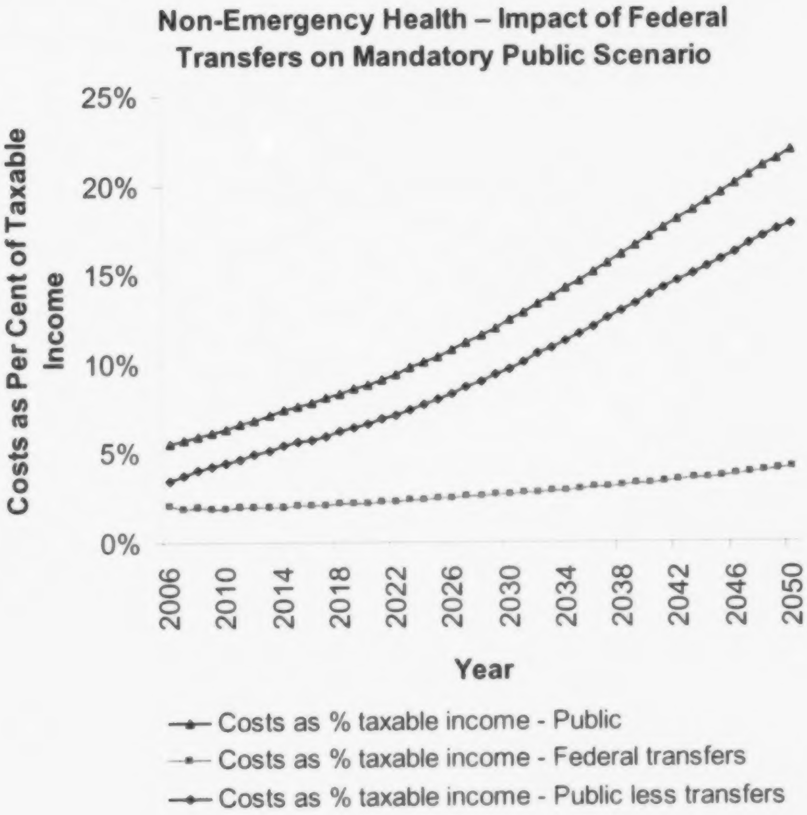
Baseline Cost Projection

- Total projected costs were $5.1 billion in 2006
- By end of projection period:
  - Cost inflation and population growth combined to $245.8 billion
  - As a per cent of projected taxable income, claims grew from 5.5% in 2006 to 37% in 2050
- Public mandatory insurance will follow baseline scenario, but with lower projection factors after 2015 because of the assumed 6% cap on cost increases



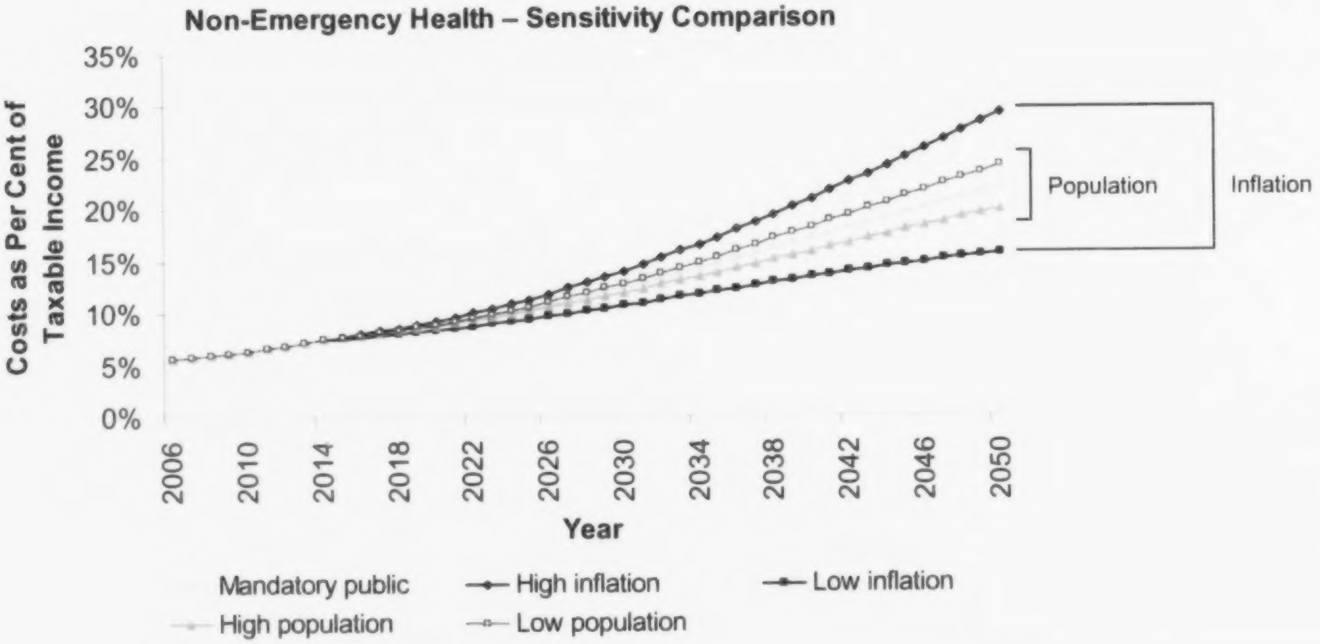
Federal Funding

- Federal transfers are a large component of non-emergency health funding
- Assuming the transfers grow at 6% per year, federal transfers will decline as costs grow faster due to
  - population growth
  - aging and
  - inflation
- Any conceptual model with private insurance for non-emergency health may result in reduced federal funding



Sensitivity Testing

- Inflation is the most significant factor impacting projected growth of non-emergency health
- Primary operational factor for ensuring sustainability is controlling cost growth (largely total salaries) through improved productivity



Conceptual Model Comparison

Conceptual Model	Encourage Personal Responsibility	Efficiency	Cost Control	Choice in Coverage
Public Mandatory	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures Centralized administration	Competition between health service providers	Limited
Public Mandatory with Private Supplemental Coverage	Contingent on plan design (premiums and cost sharing)	Limited competitive pressures Mixed administration	Competition between health service providers	Limited for basic Higher for supplemental
Private Mandatory with Public Premium Pooling	Contingent on plan design (premiums and cost sharing)	Strong competitive pressures Centralized premium collection Decentralized administration	Competition between health service providers	Higher

Non-Emergency Health Insurance Observations

- Privatization of providers and potential improvements in productivity could have a larger long-term impact on cost control than private insurance
- Effect of private insurance is limited without private health care providers (little control over costs and limited opportunity to differentiate)
- Use of cost sharing mechanisms (co-payments and deductibles) could reduce costs and may not offset the potential loss of federal funding

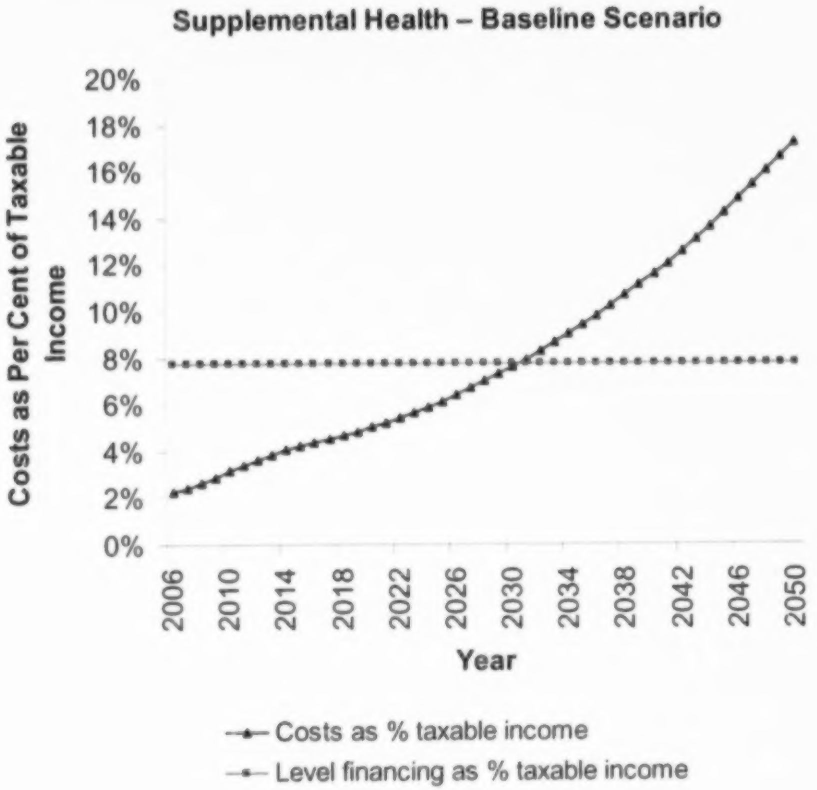
Supplemental Health

Supplemental Health – Preliminary Notes

- Broadly defined as a typical group extended health care insurance policy without prescription drug coverage
- Benefits:
  - Paramedical specialists
  - Hospital accommodation
  - Vision care
  - Miscellaneous medical equipment and supplies
- Benefits are largely privately insured; plans typically incorporate deductibles and co-payments
- Current plans negotiated between insurers and plan sponsors (employer or union)
- Pricing functions on an annual renewable term basis (no pre-funding)

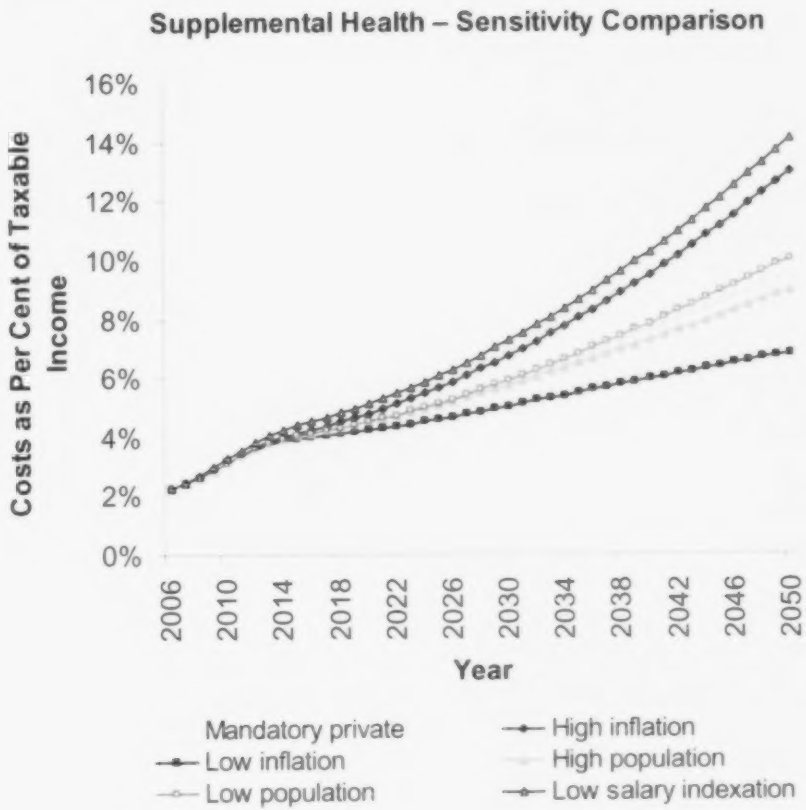
Baseline Cost Projection

- Total projected costs are $2 billion in 2006
- Cost inflation and population growth drive this to $115 billion by 2050
- Per cent of taxable income grows from 2.2% to 17.25%
- Equivalent level funding percentage is 7.76%
- 15% of costs are currently paid through various government programs



Sensitivity Testing

- Economic impacts (low economic growth) and claims costs (high inflation) have greatest impact
- For supplemental health, long-term inflation risks are currently borne by private industry



Conceptual Model Comparison

Conceptual Model	Encourage Personal Responsibility	Efficiency	Cost Control	Choice in Coverage
Private optional	Contingent on plan design (premiums and cost sharing)	Sold in a very competitive marketplace	Limited -- multiple purchasers with total cost set by market forces	High, but may be determined by employer
Private Mandatory	Contingent on plan design (premiums and cost sharing)	Sold in a very competitive marketplace	Limited private services with total cost set by market forces	High

Supplemental Health Insurance Observations

- Mandatory coverage ensures coverage for all and that everyone contributes financially for the benefit they receive
- With mandatory public insurance, the province would incur additional costs, given that these benefits are currently privately insured
- Private carriers have no greater incentive to control costs than at present
- Currently, cost risk is borne by private industry
- Mandatory coverage requires government oversight

Economic Model

Economic Model Approach

- System dynamic technique to link three distinct types modules:
  - General economic – based on relationships in Alberta Finance's long-term economic projections
  - Public finance – projecting revenue and costs forward with relationships developed from income statement and stated policy, linkages to general economic performance, and health care projections
  - Health care (public and private) – based on actuarial projections and Statistics Canada data
- Seventy assumptions to adjust where analysis requires
- Validated against:
  - Key relationships remaining relatively steady over time when causal links were not impacted
  - Results similar to BMO Special Report on "Alberta's Long-range Outlook" (January 4, 2006) for general economy and public finance

Note: All financials presented in calendar years

Baseline – Revenue and Expense

2016

- 50% of provincial expenses are health care
- Projected annual deficit and impacts sustainability

2025

- Net financial assets positive for last year

Projected Fiscal Summary 2005 to 2025

Provincial Income Statement

(Millions of Dollars)

Current Situation

	2005	**2010**	**2015**	**2020**	**2025**
Revenue					
Personal provincial tax	$ 5,062	$ 7,162	$ 10,737	$ 15,893	$ 23,163
Business provincial tax	$ 2,372	$ 2,633	$ 3,829	$ 5,537	$ 7,945
School property tax	$ 1,268	$ 1,417	$ 1,643	$ 1,905	$ 2,208
Other tax revenue	$ 1,920	$ 2,444	$ 3,347	$ 4,557	$ 6,156
Resource revenue	$ 12,307	$ 10,568	$ 9,075	$ 7,793	$ 6,692
Investment income provincial revenue	$ 1,404	$ 2,674	$ 3,068	$ 2,610	$ 897
Other own source revenue	$ 4,114	$ 5,238	$ 7,171	$ 9,762	$ 13,187
Federal government transfers	$ 3,413	$ 4,409	$ 5,900	$ 7,895	$ 10,566
Provincial revenue	$ 31,859	$ 36,547	$ 44,772	$ 55,952	$ 70,815
Expense					
AHW Expense	*$ 8,879*	*$ 13,733*	*$ 20,260*	*$ 29,489*	*$ 43,072*
Health (other programs)	*$ 771*	*$ 1,139*	*$ 1,750*	*$ 2,880*	*$ 5,080*
Total Provincial health care funding	$ 9,650	$ 14,872	$ 22,009	$ 32,369	$ 48,152
Education	$ 6,482	$ 7,922	$ 9,711	$ 11,828	$ 14,296
Social services	$ 2,530	$ 3,140	$ 3,848	$ 4,687	$ 5,665
Other expense	$ 6,298	$ 7,139	$ 8,751	$ 10,659	$ 12,883
Debt servicing cost	$ 317	$ 251	$ 251	$ 251	$ 251
Total Provincial Expense	$ 25,277	$ 33,323	$ 44,570	$ 59,794	$ 81,247
Assets					
Net Financial Assets beginning of yea	$ 16,580	$ 39,056	$ 46,947	$ 37,770	$ 3,509
Capital Assets beginning of year	$ 10,640	$ 12,850	$ 15,224	$ 17,976	$ 21,167
Net Assets beginning of year	$ 27,220	$ 51,907	$ 62,171	$ 55,746	$ 24,676

Baseline – Health Care

- Increase in private sector costs largely associated with high prescription drug cost inflation

Projected Fiscal Summary 2005 to 2025

Health Care Funding

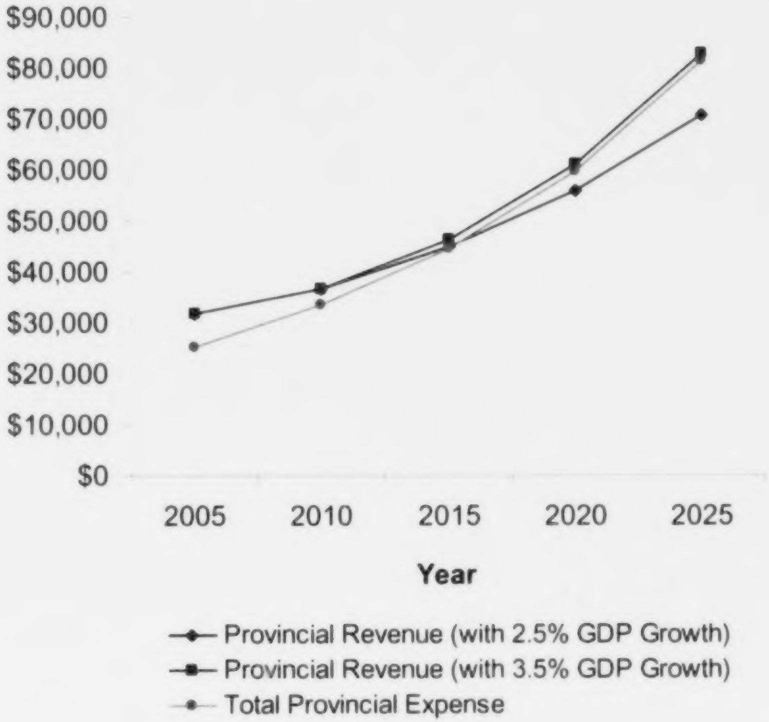
(Millions of Dollars)

Current Situation

Funding	**2005**	**2010**	**2015**	**2020**	**2025**
Public					
Alberta Health and Wellness	$ 8,879	$ 13,733	$ 20,260	$ 29,489	$ 43,072
Other departments	$ 771	$ 1,139	$ 1,750	$ 2,880	$ 5,080
Total Health Care Public Funding	$ 9,650	$ 14,872	$ 22,009	$ 32,369	$ 48,152
Private					
Insurer funding	$ 1,984	$ 4,077	$ 7,021	$ 10,591	$ 15,998
Out-of-pocket	$ 1,192	$ 2,277	$ 3,690	$ 5,462	$ 7,956
Total Health Care Private Funding	$ 3,176	$ 6,354	$ 10,711	$ 16,053	$ 23,9[illegible]
Total Health Care Cost	$ 12,827	$ 21,226	$ 32,721	$ 48,422	$ 72,105
Use of Funds					
Prescription drugs cost	$ 2,735	$ 5,698	$ 9,316	$ 13,697	$ 20,008
Continuing care cost	$ 1,263	$ 1,749	$ 2,269	$ 3,196	$ 4,674
Non-emergency cost	$ 4,714	$ 7,378	$ 11,454	$ 17,793	$ 27,726
Supplementary health cost	$ 1,830	$ 3,621	$ 6,221	$ 9,402	$ 14,241
Other health care	$ 1,900	$ 2,317	$ 2,929	$ 3,710	$ 4,708
Total Health Care Cost	$ 12,827	$ 21,226	$ 32,721	$ 48,422	$ 72,105
Total Reserves	$ -	$ -	$ -	$ -	$ -

GDP Growth Impact

- Baseline assumption is for GDP growth of 2.5% per year (conservative)
- If a 3.5% per year rate is assumed, overall provincial budget is sustainable through the projection period of 2025



Other Policy Implications

- Large scale pre-funding through increased premiums, shifts consumption to savings. How and where the reserve is invested can substantially impact overall economic performance
- Growing demand for continuing care and non-emergency health will require a dramatic increase to the workforce unless productivity rates increase substantially
- Since the working population will grow at a slower rate, there is potential for shortages and increased wage pressures
- Specific design elements of insurance plans and policies can shift the cost burden between various stakeholders as desired by policy objectives

Final Comments

Final Comments

- Insurance does not intrinsically make health care sustainable through cost reduction, but it supports:
  - Competition between health care providers on cost and quality
  - Pre-funding to reduce the 'peak' cost burden
  - Financial mechanisms to encourage healthier lifestyles and reduced health care usage
- Sustainability requires implementation of cost control measures, ideally done through increasing productivity
- Where an insurance plan transfers risk between the private and public sectors, careful consideration of impacts and potential unintended consequences is necessary
- Consumer choice increases with multiple insurers, each offering different coverage to meet different market needs

Health Benefit Design Options

FOR ALBERTA HEALTH & WELLNESS

Aon Consulting

AON

29 MARCH 2006

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness

Table of Contents

1. ***Introduction*** ***1-1***
   - *i* Overview 1-2
   - *ii* Project Deliverables 1-2
     - *Conceptual Models* *1-2*
     - *Actuarial Models* *1-3*
     - *Economic Model* *1-3*
   - *iii* Projection Uncertainties 1-3
     - *Corrective Model Design* *1-3*
     - *Inflation* *1-4*
   - *iv* Policy Neutrality 1-4
2. ***Conceptual Models*** ***2-1***
   - *i* Overview 2-2
   - *ii* Conceptual Models 2-2
   - *iii* Evaluation Criteria 2-2
     - *Personal Responsibility* *2-3*
     - *Efficient Care* *2-3*
     - *Cost Control and Sustainability* *2-3*
   - *iv* Preliminary Comments 2-4
     - *Health Insurance* *2-4*
     - *Health Care Providers and Delivery* *2-5*
     - *Community Rating* *2-6*
     - *Risk Pooling* *2-6*
     - *Cost Management* *2-7*

Pre-Funding *2-9*
Health Savings Account *2-11*
v Mandatory Public Health Insurance 2-12
Government of Alberta *2-12*
Private Sector *2-12*
Plan Choice *2-13*
Administrative Structure *2-13*
Canada Health Act *2-13*
Transparency of Government Support *2-13*
Cost Control *2-13*
vi Mandatory Public Health Insurance with Private Supplemental Coverage 2-13
Government of Alberta *2-13*
Private Sector *2-14*
Regulation *2-14*
Plan Choice *2-15*
Administrative Structure *2-15*
Canada Health Act *2-15*
Transparency of Government Support *2-15*
Cost Control *2-15*
vii Mandatory Public Health Insurance with Private Replacement Coverage 2-16
Government of Alberta *2-16*
Private Sector *2-16*
Plan Choice *2-17*
Administrative Structure *2-17*
Canada Health Act *2-17*
Transparency of Government Support *2-17*
Cost Control *2-17*
viii Mandatory Private Health Insurance with Public Premium Pooling 2-18
Government of Alberta *2-19*

Private Sector *2-19*
Regulation *2-19*
Plan Choice *2-20*
Administrative Structure *2-20*
Canada Health Act *2-20*
Transparency of Government Support *2-20*
Cost Control *2-20*
ix Mandatory Private Health Insurance 2-20
Plan Choice *2-21*
Administrative Structure *2-21*
Canada Health Act *2-21*
Transparency of Government Support *2-21*
Cost Control *2-22*
x Optional Private Health Insurance 2-22
Regulation *2-23*
Plan Choice *2-23*
Administrative Structure *2-23*
Canada Health Act *2-23*
Transparency of Government Support *2-23*
Cost Control *2-23*
xi Conceptual Model Summary 2-24
xii Conceptual Model Summary continued 2-25

3. Prescription Drugs* *3-1
i Overview 3-2
ii Baseline Projection 3-2
Current Cost Growth Unsustainable *3-2*
Revised Baseline *3-3*
Model Assumptions *3-6*
Methodology *3-6*
Population Sensitivity Analysis *3-12*
Cost Control Implementation Speed Sensitivity *3-13*

iii Mandatory Public Drug Insurance 3-14
  - *Cost Projections* *3-14*
  - *Pre-Funding* *3-15*
  - *Sustainability* *3-17*
  - *Opportunity for Choice* *3-18*
  - *Opportunity to Link to Behaviour* *3-18*
  - *Implementation* *3-18*
  - *Conclusion* *3-18*

iv Mandatory Public Drug Insurance with Private Replacement Coverage 3-18
  - *Cost Projections* *3-19*
  - *Pre-Funding* *3-20*
  - *Sustainability* *3-21*
  - *Opportunity for Choice* *3-21*
  - *Opportunity to Link to Behaviour* *3-21*
  - *Implementation* *3-21*
  - *Conclusion* *3-21*

v Mandatory Private Drug Insurance with Public Premium Pooling 3-22
  - *Cost Projections* *3-23*
  - *Pre-Funding* *3-24*
  - *Sustainability* *3-25*
  - *Opportunity for Choice* *3-25*
  - *Opportunity to Link to Behaviour* *3-25*
  - *Implementation* *3-25*
  - *Conclusion* *3-25*

4. Continuing Care 4-1

i Overview 4-2
  - *Home Living Based Clients* *4-3*
  - *Facility Based Clients* *4-3*
  - *Supportive Living Based Clients* *4-3*

ii Baseline Projection 4-4

2005-2015 .... *4-4*
2016-2040 .... *4-4*
After 2040 .... *4-4*
Alternative Payer Approaches *4-5*
Population Sensitivity *4-5*
Need for Mandatory Insurance *4-7*
iii Mandatory Public Health Insurance 4-7
Cost Projections *4-7*
Pre-Funding *4-8*
Sustainability *4-10*
Opportunity for Choice *4-10*
Opportunity to Link to Behaviour *4-10*
Conclusions *4-10*
iv Mandatory Public Health Insurance with Private Supplemental Coverage 4-10
Cost Projections *4-11*
Sustainability *4-11*
Opportunity for Choice *4-12*
Opportunity to Link to Behaviour *4-12*
Conclusions *4-12*
v Mandatory Private Health Insurance with Public Premium Pooling 4-13
Cost Projections *4-13*
Sustainability *4-14*
Opportunity for Choice *4-14*
Opportunity to Link to Behaviour *4-15*
Implementation *4-15*
Conclusions *4-15*
vi Mandatory Private Health Insurance 4-15
vii Optional Private Health Insurance 4-16

5. Non-Emergency Health 5-1
i Overview 5-2

ii Summary of Findings 5-3
Baseline Analysis *5-3*
Costs *5-3*
iii Mandatory Public Health Insurance 5-8
Key Cost Drivers *5-13*
Sustainability *5-15*
Opportunity for Choice *5-15*
Opportunity to Link Behaviour *5-15*
Sensitivity Testing *5-15*
Conclusions *5-17*
iv Mandatory Public Health Insurance with Private Supplemental Coverage 5-17
Public Services *5-17*
Private Services *5-17*
v Mandatory Private Health Insurance with Public Premium Pooling 5-19
Key Cost Drivers *5-20*
Sustainability *5-21*
Opportunity for Choice *5-21*
Opportunity to Link Behaviour *5-21*
Conclusions *5-21*

6. Supplemental Health* *6-1
i Overview 6-2
ii Summary of Findings 6-3
Baseline Analysis *6-3*
Costs *6-3*
iii Mandatory Public Health Insurance 6-8
Key Cost Drivers *6-8*
Sustainability *6-8*
Opportunity for Choice *6-8*
Opportunity to Link Behaviour *6-8*
Sensitivity Testing *6-8*

Conclusions *6-8*
iv Mandatory Public Health Insurance with Private Supplemental Coverage 6-9
Key Cost Drivers *6-9*
Sustainability *6-9*
Opportunity for Choice *6-9*
Opportunity to Link Behaviour *6-9*
Sensitivity Testing *6-9*
Conclusions *6-9*
v Mandatory Private Health Insurance 6-9
Key Cost Drivers *6-11*
Sustainability *6-12*
Opportunity for Choice *6-12*
Opportunity to Link Behaviour *6-12*
Sensitivity Testing *6-12*
Conclusions *6-13*

7. *Economic Analysis* *7-1*
i Model Overview 7-2
Primary Data Sources *7-3*
ii Baseline Analysis 7-3
Provincial Finances *7-3*
Health Care *7-4*
Canada Health Act Related Funding *7-5*
GDP Impact on Sustainability *7-6*
Other Program Cost Impact on Sustainability *7-7*
iii Selected Insurance Plan Impacts 7-9
Prescription Drugs *7-9*
Continuing Care *7-9*
Non-Emergency Health *7-10*
iv Other Comments 7-10
v Methodology Overview 7-12

Unemployment – GDP Relationship 7-12
Health Care Module Sensitivity Testing 7-13
Provincial Economy Sensitivity Testing 7-15
Employment Sensitivity Testing 7-16
Provincial Government Revenue 7-17
Health Outputs 7-17
General Comments on Multiplier 7-17

8. Vignettes* *8-1
i Overview 8-2
Vignette 1 8-2
Vignette 2 8-3
Vignette 3 8-3
Vignette 4 8-3
Vignette 5 8-4
Vignettes – Summary Observations 8-4
ii Additional Analyses 8-4
Overview 8-4
Scenarios 8-5

9. Actuarial Methodology* *9-1
i Population 9-2
Projection of Age-bands 0-4 9-2
Projection of Age-bands 5-9 to 60-64 9-2
Projection of Age-bands 65-69 to 95+ 9-2
Final Results 9-3
ii Income 9-3
Income per Individual 9-3
Income per Household 9-3
Consistency 9-3
Projection to Future Years 9-3
Commentaries on Income Increases 9-4

iii Public/Private Differential 9-4
iv Prescription Drugs 9-5
  Incidence Rates 9-6
  Costs for Year 2004 9-6
  Rates of Increase 9-7
  Projection Method 9-8
  Calculation of Projected Values 9-8
v Continuing Care 9-11
  Calculation of Projected Values 9-11
vi Non-Emergency Health 9-12
  Overview 9-12
  Per Capita Costs 9-12
  Projection Factors 9-13
  Projected Costs 9-13
  Federal Transfers 9-13
vii Supplemental Health 9-13

Introduction

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

In an effort to improve Albertans' access to quality health care, Alberta's health system changed considerably during the past decade. Stakeholders have worked together and have accomplished a great deal. However, there are still important challenges to address. In response to these challenges, Alberta has announced the Third Way. Overall goals of the Third Way include:

- Improving the health of Albertans;
- Improving access to health care services;
- Providing quality health care services;
- Offering choices to Albertans; and
- Ensuring sustainability of the health care system.

The *Health Benefit Design Options* project supports Alberta's Third Way initiative. This document provides actuarial and economic projections of insurance models for subsequent policy analysis by government. Models and projections were developed for the following health benefit groups:

- Prescription drugs;
- Continuing care;
- Non-emergency health care; and
- Supplemental health care products and services.

Project Deliverables

The overall goal of the *Health Benefit Design Options* project is to explore strategies to contain public health expenditure growth and provide the opportunity for Albertans to have increased access and choice with respect to health care services.

More specifically, the project explores alternative financing models for health services by:

- Creating conceptual models for health services insurance;
- Conducting actuarial analysis of the new models; and;
- Assessing the economic impact of each model.

Conceptual Models

Conceptual models of insurance plans in this study were developed to illustrate some of the options available to the Government of Alberta. They represent a variety of different funding and benefit structures and different approaches to introduce insurance principles into the Alberta health care system.

The conceptual models are based, in part, on the experiences in other provinces and countries (e.g., Quebec, Australia, Germany and the Netherlands), the private sector, and even other types of insurance (e.g., auto insurance). All models are adapted to reflect the specific needs of the Alberta health care system.

Where appropriate, specific insurance plan design attributes have been incorporated into the models. Many can be implemented in any conceptual model, others are variants on specific models for specific groups of health services.

Actuarial Models

The actuarial model and analysis describes the capacity of the current and forecasted Alberta population to cover costs of insurance plans identified during conceptual model development.

Also included in the actuarial model is a funding model that tests assumptions and plan design elements specific to each model. This is a core tool for sensitivity testing. For those specific insurance plans deemed material, and of interest to the Government of Alberta, the impact is modelled where there is sufficient reliable data available.

Economic Model

The economic model is a simulation of the current and forecasted Alberta health care system. It integrates the demographic, utilization and cost data in the actuarial model with:

- Health sector model of funding and labour use;
- Public sector projections based on the functional health structure in the Province's budget; and
- A general economic model derived from Alberta Finance's long-term projections.

Projection Uncertainties

The long-term nature of the projections magnifies the uncertainty inherent in any actuarial and economic projection. While every reasonable effort has been taken to ensure the accuracy of the projections, it is important to note that the reliability of very long-term projections is somewhat limited.

Nevertheless, the funding issues surrounding health care related to demographic shifts are relatively predictable. These shifts are also sufficiently large that early planning is required.

Corrective Model Design

To minimize the impact of statistical uncertainty, assumptions have been linked together where possible. For example, where an assumption proves invalid, it will impact both costs and revenues, minimizing the relative difference between alternatives – if one option is superior to another, the invalidated assumption will not change the analysis, even if the precise calculation and forecasts require revision.

Similarly, the economic modelling has been done as a simulation, rather than a traditional multivariate projection, as the policy changes and potential for changes in causal relationships are too high to ignore.

Inflation

Projected inflation rates for health care service costs are the largest source of uncertainty. Health care spending in Alberta has more than doubled in the last ten years, after remaining relatively stable during the previous ten years.[1] It is not possible to separate the policy and market forces from the rapid increase, nor to assess precisely how the medical inflation rate will change as health care sustainability becomes increasingly at risk in North America and the Organization for Economic Co-operation and Development (OECD) countries.

Indeed, the current inflation trends are not sustainable, and projecting them forward is not a useful process. The Conference Board of Canada's recent study on Ontario's health care system also found it necessary to trend the inflation costs down from current levels (even where there is no evidence that there are management initiatives to justify the assumption). Without this adjustment, health care is unsustainable.

Policy Neutrality

There is no intention that the projections and analysis in this document recommend any specific or general policies to the Government of Alberta. Projections and analysis are, to the extent possible, value and policy neutral. This report is limited to a technical analysis of demographic, health service utilization, cost projections and other economic factors.

This study was funded by Alberta Health and Wellness. The study represents the opinions of the authors who are solely responsible for its contents. It does not represent government policy.

Conceptual Models

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

This section provides a variety of different conceptual models of insurance plans for the Government of Alberta to consider. Each model represents a different funding and benefit insurance structure for providing insurance in the Alberta Health Care System.

Each conceptual model:

- Can stand alone or be combined with any other plan selected for other health services groups;
- Has no implementation interdependencies between other conceptual models presented in this report (although there may be scale or other efficiencies associated with implementing more than one model at a time);
- Provides for the continued delivery of health services programs for all eligible Alberta residents, regardless of their ability to pay;
- Is supported by actuarial models that describe the costs of the health services, both to government and to participating insured persons, over time, and according to a forecasted demographic description of the Alberta population; and
- Simplifies the complexity of an actual health insurance system with many operational mechanisms not fully represented.

Conceptual Models

Six conceptual models were identified through collaborative evaluation against overarching policy objectives for more detailed investigation for at least one health benefit group:

- Mandatory Public Health Insurance;
- Mandatory Public Health Insurance with Private Supplemental Coverage;
- Mandatory Public Health Insurance with Private Replacement Coverage;
- Mandatory Private Health Insurance with Public Premium Pooling;
- Mandatory Private Health Insurance; and
- Optional Private Health Insurance.

Evaluation Criteria

Each conceptual model was evaluated on how effectively it promotes the province of Alberta's health care objectives. Three classes of objectives were identified for the purposes of this project:

- Personal responsibility;
- Efficient care; and
- Cost control.

Personal Responsibility

The models were evaluated based on the degree to which each insurance plan conceptual model encourages citizens to take personal responsibility for their health and the outcomes (lifestyle and financial) associated with personal decisions.

Note that factors beyond an individual's control (such as family history of disease) would not be included in this evaluation of plan effectiveness, even if they impact an individual's risk levels.

Efficient Care

The conceptual models were assessed on their ability to promote efficient delivery of health care. This is largely related to how well each specific conceptual model:

- Promotes the use of cost-effective treatment by promoting, for example, positive health outcomes and wellness, with minimal cost; and
- Reduces unnecessary or not cost-effective treatment (e.g., shopping for diagnoses, substitution of more expensive drugs where there is no clinical evidence of better outcomes).

To this end, the ability to promote improved operational management and competitive pressures is a significant advantage for any of the insurance plan conceptual models.

Cost Control and Sustainability

Models were also evaluated based on their ability to control rising health care costs. Specifically, how well do plans limit the demand and increase the supply of health care services?

Assessment of conceptual models includes both direct and indirect impact.

- *Direct impact* – How does the contribution of an insurance plan (based on a conceptual model) directly impact cost savings? These savings are intrinsic to the operation of the plan.
- *Indirect impact* – What cost control mechanisms can be implemented if this conceptual model is in place? Essentially, how does the model's structure or characteristics allow for other cost control programs?

Furthermore, the conceptual models need to reduce long-term health care costs and support sustainability in the following ways:

- Public health care costs should not grow excessively, threatening the ability of the Government of Alberta to support other provincial programs.
- Total public and private health care costs should not grow excessively to threaten the economic well being of Albertans. The proportion of total

spending devoted to health care should remain as close to current levels as possible.

Finally, a conceptual model's cost control mechanisms are only acceptable if they do not disadvantage population groups that currently receive support from the province of Alberta (e.g., children living in poverty or the disabled).

Preliminary Comments

The conceptual models share a number of common characteristics and properties discussed below.

Health Insurance

As the conceptual models are all health insurance plans, they have a number of common attributes. In this section, the basic principles of health insurance, paying premiums and the effect of competition are discussed.

What is health insurance?

Health insurance spreads risk across a large group of individuals, limiting each member's maximum financial exposure related to the provision of necessary health services (e.g., filling a drug prescription to treat illness).[2]

The following statements illustrate how this works.

- For individuals, the timing and need for health care services over a lifetime is largely uncertain.
- The cost of providing health care services is also uncertain in terms of timing and magnitude. This creates a potential risk that an individual who requires very costly health care would be unable to pay health care costs.
- However, for a large group, such as the population of Alberta, the timing, need and cost of health services are relatively predictable.
- Health insurance allows payment of premiums into a funding pool that is used to pay for covered medical services as needed. Since the cost of health care services for the pool is relatively predictable, everyone shares risk.

How can everyone afford to pay premiums?

Premiums are collected using a number of different processes, each with different implications. There are several techniques available to ensure that the collected premiums are sufficient to cover the anticipated cost of health care:

- Governments can pay premiums on behalf of those members of society without the means or capacity to make payments on their own;
- Other income support plans may be adjusted to incorporate the need to pay health insurance premiums; and
- Health insurance premiums can be linked to taxable income. If you do not earn taxable income, then you do not pay health insurance premiums. Those with higher income levels contribute more,

in a manner similar to the income tax system. This particular method for calculating a public sector insurance premium is the most common approach where the public sector is involved in providing health insurance.

Premium Types

Health insurance premiums in different countries are structured in different ways to meet the requirements of local policies. Three general types were identified:

- Fixed dollar premium – a standard rate (e.g., $750 per year) is levied to provide health insurance coverage;
- Percentage of taxable income – the health insurance premium is based on taxable income (e.g., 1%) and may, or may not, have a maximum amount; and
- Progressive rate of taxable income – the health insurance premium is based on taxable income, but the rate increases as income rises (e.g., 1% for taxable income below $40,000 and 2% on taxable income above $40,000). There may, or may not, be a maximum amount of premium paid.

The collection of health insurance premiums may require adjustments to other provincial revenue streams to balance the effects of new income sources.

Projections in this study rely on the total premium collected and do not evaluate the specific policy implications of the different premium types.

Health Care Providers and Delivery

The conceptual models identified in this study are suitable for implementation in environments with different health care delivery ownership structures. Accordingly, each conceptual health insurance model could be implemented with health care providers owned by the public sector or private sector.

An insurance provider optimizing the cost-benefit of premiums and health services focuses on measures of service effectiveness (cost, efficiency, quality and similar performance attributes), rather than ownership. If the ownership structure impacts cost effectiveness, it has a material impact on health costs and premiums.

Effect of Competition

Competition between health insurance providers takes place on the following levels:

- Premium rates;
- Services and procedures covered;
- Speed of care delivery; and
- Flexibility and choice.

To the extent that health insurance carriers can make individual supplier arrangements with a variety of health care providers, they are better able to offer a wide range of plans, each offering different attributes more targeted to the needs of specific population segments.[3]

For example, an insurance provider could contract with a specialty diagnostic lab and guarantee an MRI within 72 hours from a specialist's request. This would be offset by the need for the patient to visit a specific lab. Consumers would then be able to make choices between plans such as this, and others that offer greater flexibility in selecting providers, but have longer wait times.

Therefore, if there are only public-sector health care providers (or only public-sector providers for a large group of health services), it is difficult to create a range of insurance plans as there is likely limited variation in health service delivery.

Community Rating

Within the context of health insurance, community rating means that an insurance company must charge the same premium rate for a given level of service, regardless of age, sex or health status. Essentially, all adults pay the same amount for the same benefits (subject to linking premiums to income level, where everyone at the same income level would pay the same premium).[4]

All of the conceptual models where insurance coverage is mandatory (i.e., everyone in the population must participate) can accommodate community rating as an attribute of specific insurance plan design.

This approach does not generally work for plans where coverage is optional, as individuals who are more likely to need health services and make claims are more likely to purchase insurance. Those in low risk groups generally take on lower levels of coverage. The net effect is to increase the cost of insurance to those most likely to need it.[5]

Unlike auto or life insurance, individual attributes such as age, sex, health or past claims do not affect premium rates. Thus, while ensuring equal premiums and shifting costs across the entire population, community rating precludes setting premiums in a manner that encourages wellness and healthy lifestyles (which in turn reduce the overall health care costs).

One example for using community rating would be to ensure that the differential cost of health services between genders does not create different premium costs. Simply, without community rating an insurer would offer different rates to men and women. As noted above, to effectively price a flat insurance rate for the entire Alberta population regardless of gender, an insurance plan should be mandatory.

Risk Pooling

Where public policy requires community rating or a limited number of individual attributes for setting premiums, there is a risk that private insurers will 'select' their clients. That is, the insurer seeks to obtain clients with a risk profile that is lower than is commensurate with the premium charged. This will increase profitability for the insurer.

To minimize the effect of this, and focus competition on providing cost-effective insurance with appropriate consumer choice, risk pooling could be introduced for the mandatory private health insurance models. Essentially, a funding pool is created and those insurers with lower risk are required to pay into the pool, and those with higher risk clients are entitled to take funds out. This approach, or a variant on it, is currently used in several countries, including Switzerland and the Netherlands.

Cost Management

Insurance providers use a number of techniques to manage health costs. There are two common techniques that can be used with any of the conceptual models – cost sharing and treatment protocols.

Cost Sharing

Cost sharing means that claimants must make payments towards the insured health services they use. Co-payments and deductibles are two forms of cost sharing. Insurance providers use these cost sharing techniques to ensure that claimants are aware of the cost associated with health care, and to limit unnecessary demand by making the claimant partially responsible for payment of the health service.[6]

While similar in principle, the two techniques differ in detail:

- *Co-payments* – a claimant pays either a percentage of the cost or a fixed fee – each time they receive a health service and;
- *Deductibles* – the claimant pays up to a certain amount, making the claimant the first payer. The insurance provider does not pay for the health service until the costs exceed the deductible value.

These mechanisms may be further modified by introducing different minimum and maximum payment levels. For example, some plans specify that total co-payments or deductibles paid cannot exceed a defined maximum in a specific year.

Note that for health services included in the *Canada Health Act*, co-payments and deductibles may attract penalties or the withholding of transfer payments.[7]

The effectiveness of co-payments and deductibles is controversial in the health care arena. Proponents suggest that co-payments and deductibles reduce citizens' sense of entitlement toward health care, limiting demand and placing greater responsibility on individuals to adopt healthy lifestyles. They encourage people to only use the health care system when there is an appropriate need. Without cost sharing, people tend to overuse health care as it is inexpensive to access, but expensive to deliver. Critics use research evidence to suggest that these objectives are not reached in practice, and although health care demand is reduced through co-payments, it fails to target the kind of health care use that strains the system. For example, patients with colds that are untreatable by physicians tend to reduce their use of the health care system in the same proportion as patients with hypertension, who should be seeking urgent medical attention.[8]

Treatment Protocols

Insurance providers can use treatment protocols for specific health services to standardize medical care, raise quality of care, reduce risks and balance cost and medical outcomes. These protocols often consist of a set of decision points and recommended (or mandated) choices for specific courses of treatment.

From the cost control perspective, initial treatment is often the lowest cost/best-outcome combination. If initial treatment is inappropriate or ineffective, there is a list of successive options to consider. Taken together the protocols attempt to optimize the trade-offs between cost and effectiveness.

On one hand, health care providers often resist these protocols on the grounds that only the attending professional has all of the facts available to make a decision and select a course of treatment that best meets the needs of the specific patient.

On the other hand, health care professionals face difficulties remaining up-to-date on all aspects of health care. There is also a disconnect between prescribing treatments and paying for care – ultimately, medical professionals may be unable to make the cost-effective decisions required to keep the health care system as a whole sustainable.[9]

Cost Impacts

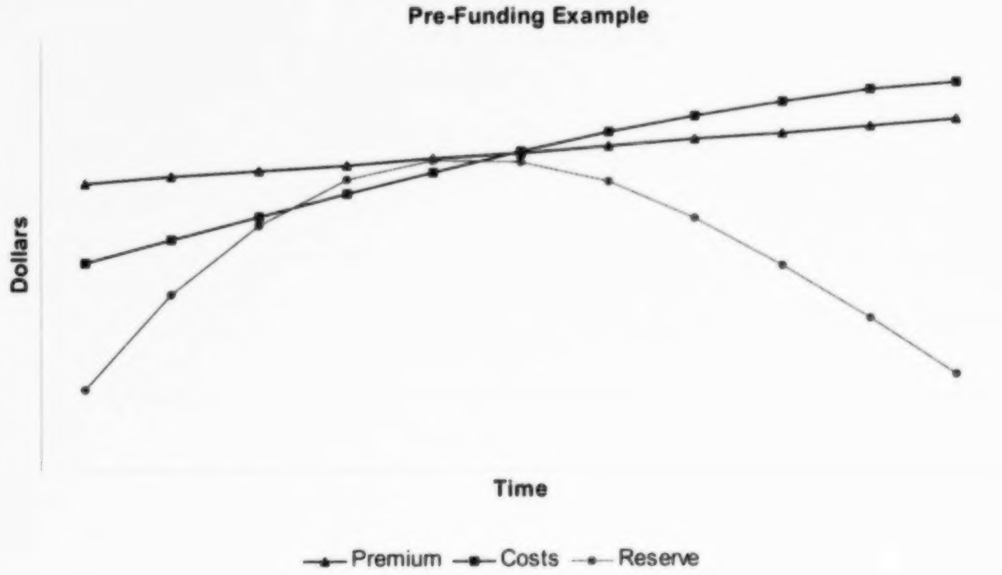
Where a conceptual model has a private sector component, there is a cost impact. Although the impact varies somewhat for each insurance model and health service, these can be summarized as:

- Increasing costs due to requirement for return on capital and profit, and
- Decreasing costs associated with higher productivity associated with trend to increase capital use in the private sector.

Pre-Funding

Pre-funding refers to a saving or investment strategy that works in conjunction with an insurance plan to minimize the effect of rising premiums associated with inflation, increased health service utilization and an aging population.[10]

Pre-funding refers to a saving or investment strategy that minimizes the effect of rising premiums associated with inflation, increased health service utilization and an aging population.



Essentially, pre-funding collects more premiums and other income than there are anticipated costs, creating a reserve. Over time, this reserve grows through investment income and additional surplus premiums. Then, at a future point when rising health care costs exceed the premiums collected, funds in the reserve can be used to pay costs, minimizing the effect of rising costs.

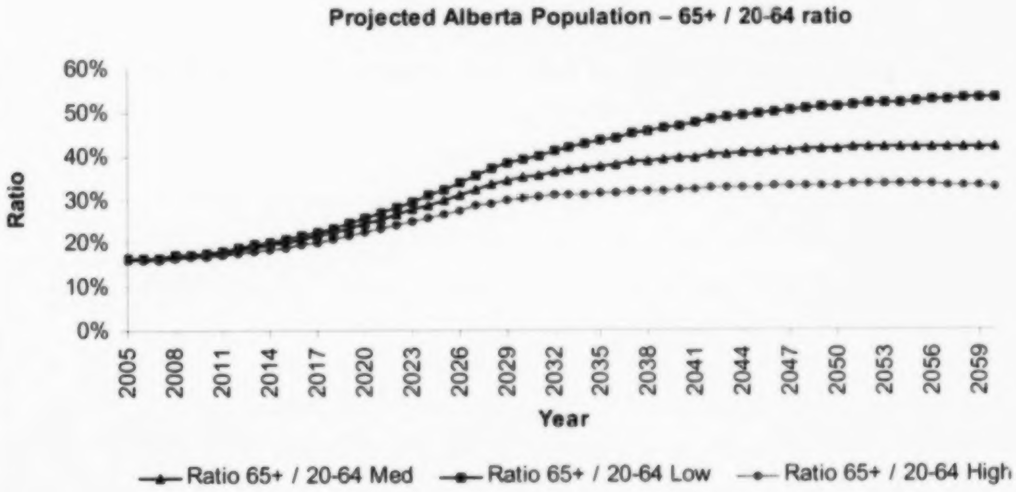
The pre-funding rate needs periodic recalculation to reflect variations between projections and actual experience. Also, if the pre-funding interval is shortened, the impact on mitigating the rate of costs decreases and the rate structure resembles a pay-as-you-go approach.

The above pre-funding example shows how the rate of increase in costs is higher than the increase in premiums. Indeed, while costs nearly double in the example, the premiums rise by only 20% as the reserve and subsequent investment income fund a portion of costs once premiums are unable to do so. Thus, although costs are not contained in the example, the "spike" in costs is not as significant a disruption as would otherwise be the case.

Aging Population

Pre-funding is particularly significant where there is an aging population and the proportion of the working population is declining relative to those not working (e.g., retired persons). Based on updated and extended Alberta Finance population projections, the number of workers per retired person will decline from 5.2 to between 1.9 and 3.3 by 2050.[11]

The aging Alberta population will place an increased burden on workers to support public health care costs.



Should health care costs continue to be paid on a pay-as-you-go basis, as is current practice in Alberta, the sustainability of health care is threatened insofar as:

- The per capita cost of health care increases as the population ages (older people use more medical services); and
- Fewer workers reduce the component of provincial revenue growth correlated with employment.

Accordingly, there is a trend of increasing health care costs and reduced revenue growth, which may increase significantly should natural resource incomes decline materially after 2025. In turn, this could impose a dramatically higher financial burden on the post baby boomers to support the health care costs of the previous generation. Indeed, as the demographic bulge (currently between 45 and 62 years old) levels off, subsequent generations would face a relatively lower financial burden.

Pre-funding provides an opportunity to reduce the payment growth rate and allow the baby boom generation to increase contributions to their future health care costs (and reduce the proportionate burden on the following generation).[12]

Health Savings Account

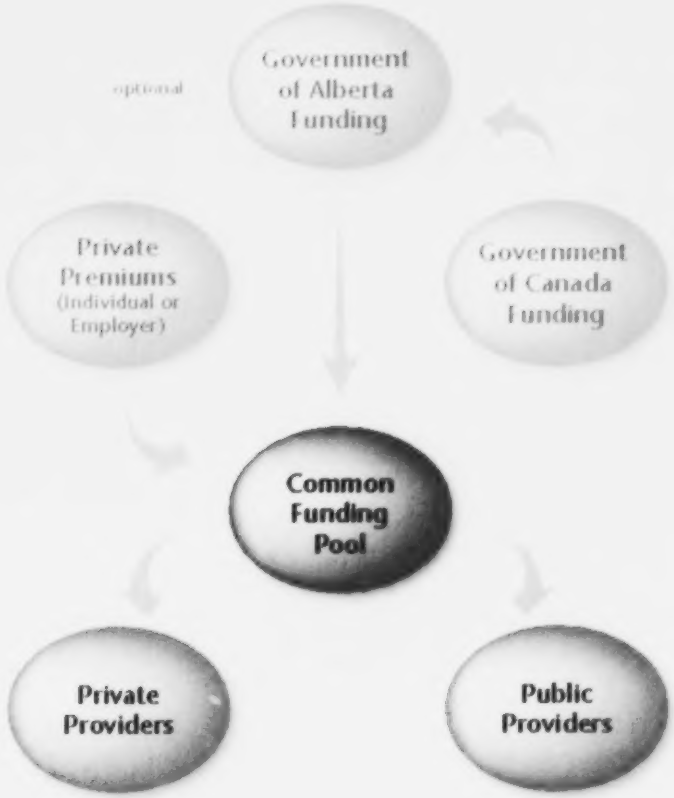
A Health Savings Account (HSA) is a tax advantaged savings plan that allows individuals to deposit money to pay for current and future medical expenses. Generally, money is deposited to the account prior to paying tax, and the account may be drawn upon to pay for medical expenses on a tax free basis. These typically include:

- Full payment of uninsured health services; and
- Co-payments and deductibles for those services covered by insurance.

All of the conceptual models described in this document may be used in conjunction with a Health Savings Account.

Mandatory Public Health Insurance

This plan centres on a single government run, or owned, health insurance provider. Operationally, the insurance plan is set up and run in a manner similar to a private insurer, without needing to generate a profit (unless there is a policy decision to do so).


optional
Government of Alberta Funding
Private Premiums (Individual or Employer)
Government of Canada Funding
Common Funding Pool
Private Providers
Public Providers

The core element of the conceptual model is the common funding pool, which is used to pay ongoing costs and create a reserve (for risk management or pre-funding anticipated expenses). Funding sources could include:

Government of Alberta

- General revenue; and
- Health funding from the federal government.

Private Sector

- Individuals are typically the primary contributors to the funding pool. Their contributions could be offset by a reduction in income/other taxes and the current Alberta Health Care Insurance Premium.
- Employers could be required to pay a portion of the premium (this decision may account for the level of funding currently provided by employers for the specific group of insured health services).

Premiums directly from the private sector can be either flat fee or income based. As noted previously, flat fees enable universality with government support for those with low incomes or limited wealth.

Since this model assumes a single government-controlled purchaser of health care (unless individuals can purchase health care directly), provider fees will largely be set through negotiation and/or regulation.

Plan Choice

Choice is limited, as the provider often resembles a monopoly. Although there is no conceptual limitation that prevents offering different plans with a variety of coverage levels, no structural pressure exists to encourage the insurance provider to offer choice.

Administrative Structure

Mandatory public health insurance has a centralized administrative process with a single premium collector and one manager of health care providers.

Canada Health Act

There is no profit element in mandatory public health insurance. Plan design elements, such as cost sharing, could attract penalties.

Transparency of Government Support

Transparency is variable – premiums are distinct from other government support to health care and variations in premiums could be clearly linked to changes in government support (e.g., reduction in federal health transfers directly increases premiums).

Cost Control

Predictability

The Government of Alberta can determine the total level of health care spending in the province. Although limiting this can impact quality and quantity of care, there is an absolute ability to prevent an undue rise in total costs.

Competitive Pressure

As the mandatory public health insurance model is monopolistic, there are no competitive pressures on plan costs.

Mandatory Public Health Insurance with Private Supplemental Coverage

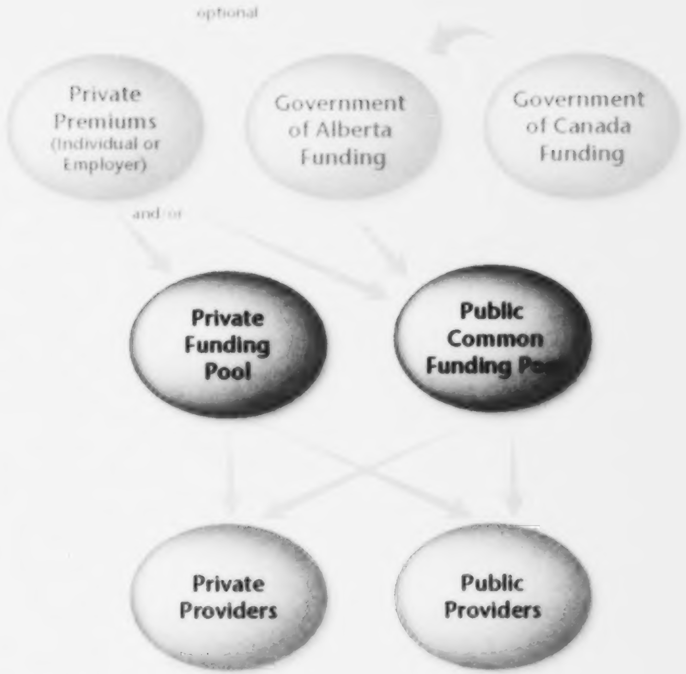
This type of plan offers two choices of health insurance:

- Mandatory health insurance via a publicly run insurance plan; and
- Optional private insurance plan as a supplement to public insurance.

The public plan provides universal coverage, but citizens have the option of purchasing additional private insurance from a range of providers to ensure supplemental benefits, including faster or additional services. The core element of the public plan is a common funding pool (as in the mandatory public plan), which is used to pay the ongoing costs and create a reserve (for risk management or pre-funding anticipated expenses). Funding sources could include:

Government of Alberta

- General revenue; and
- Health funding from the federal government.


optional
Private Premiums (Individual or Employer)
Government of Alberta Funding
Government of Canada Funding
and/or
Private Funding Pool
Public Common Funding Po
Private Providers
Public Providers

Private Sector

- Individuals are typically the primary contributors to the funding pool. Their contributions could be offset by a reduction in income/other taxes, and the current Alberta Health Care Insurance Premium.
- Employers could be required to pay a portion of the premium (this decision may account for the level of funding currently provided by employers for the specific group of insured health services).

The supplemental plans are paid exclusively through individual or employer private sector premiums, including:

- Individuals who decide they would like to purchase insurance allowing access to a different level of coverage than that in the standard universal plan; and
- Employers that wish to provide employees with additional insurance coverage, to ensure enhanced medical services.

Note that where there is a small set of niche services available for supplemental coverage, it may be difficult to attract a significant level of insurance providers. This scenario assumes that only a small number of consumers will take supplemental health insurance if the range of services covered is small, for the majority will seek coverage only when the risk is realized and the private carrier will not provide coverage (i.e., the illness manifests itself and coverage would be denied for the pre-existing condition).[13]

Regulation

Private plans may require regulation or oversight for solvency and coverage levels. Private plans may also require a community rate or individual premiums based on health risk assessments.

Plan Choice

For publicly provided services, choice is limited by a monopolistic provider. There is no structural pressure encouraging the insurance provider to offer choice.

Private services would operate in a fully competitive environment, and one would expect a range of choice commensurate with market size and variability in customer needs.

Administrative Structure

The public insurance administration is centralized, with a single premium collector and one purchaser of health care services.

In contrast, the private supplemental insurance administration is decentralized, with multiple channels for sales and collecting premiums and multiple purchasers of health care services.

Canada Health Act

There is no profit element for the mandatory public health insurance. Plan design elements, such as cost sharing, could attract penalties.

Transparency of Government Support

Transparency is variable. For the public element of the plan, premiums are distinct from other government support to health care and variations in premiums could be clearly linked to changes in government support (e.g., reduction in federal health transfers increases premiums directly). Private costs would be clear (and direct) to the extent that they are paid directly (rather than through an employer or other group).

Cost Control

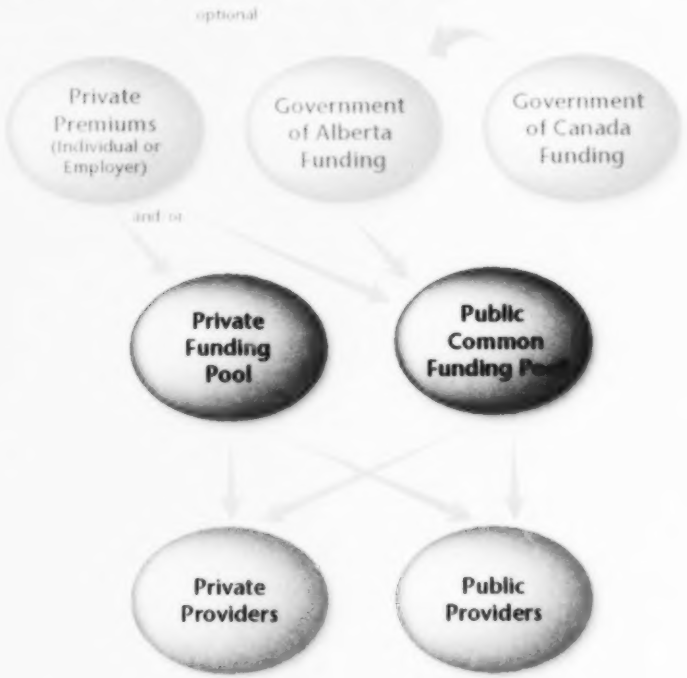
Predictability

The Government of Alberta can determine the mandatory level of health care spending in the province, but the supplemental portion will be subject to supply and demand pressures as would any other consumer service.

Competitive Pressure

The monopolistic nature of the public plan leaves the possibility for competitive pressures on the mandatory portion of plan costs. Supplemental services would have full competition on prices and service delivery.

Mandatory Public Health Insurance with Private Replacement Coverage


optional
Private Premiums (Individual or Employer)
Government of Alberta Funding
Government of Canada Funding
and/or
Private Funding Pool
Public Common Funding Pool
Private Providers
Public Providers

This type of plan provides a core level of universal health insurance through a publicly run insurance plan. However, citizens have the choice to replace this coverage with private insurance that meets a defined minimum level of coverage.

This type of plan offers universal coverage and allows for community rates, providing rates are supported by regulation. Variation in group pricing such as those offered by employers, is also an option.

The core element of the public plan is a common funding pool (as in the mandatory public plan), which is used to pay the ongoing costs and create a reserve (for risk management or pre-funding anticipated expenses). Funding sources could include:

Government of Alberta

- General revenue; and
- Health funding from the federal government.

Private Sector

- Individuals are typically the primary contributors to the funding pool. Their contributions could be offset by a reduction in income/other taxes, and the current Alberta Health Care Insurance Premium.
- To offset the potential issue of high-income earners selecting private insurance, privately provided replacement coverage does not need to result in a complete exemption from premiums.
- Employers could be required to pay a portion of the premium (this decision may account for the level of funding currently provided by employers for the specific group of insured health services).

The replacement plans would be paid through individual or employer private sector premiums, including:

- Individuals who decide that they would like to purchase insurance allowing access to a different level of coverage than that in the standard universal plan; and
- Employers that wish to provide employees with additional insurance coverage, to ensure enhanced medical services.

Plan Choice

Choice in finding a suitable insurance plan would be relatively high as insurance carriers seek to attract business.

Administrative Structure

The public insurance administration is centralized, with a single premium collector and one purchaser of health care services.

The private supplemental insurance administration is decentralized, with multiple channels for sales and collecting premiums and multiple purchasers of health care services.

Canada Health Act

Alignment with the *CHA* principles is dependent on the specific plan design and funding processes. Plan design elements, such as cost sharing and multiple levels of coverage, could attract penalties.

Transparency of Government Support

Transparency is variable. Premiums are distinct from other government support to health care and variations in premiums could be clearly linked to changes in government support (e.g., reduction in federal health transfers increases premiums directly). For private costs, there is no government support.

Cost Control

Predictability

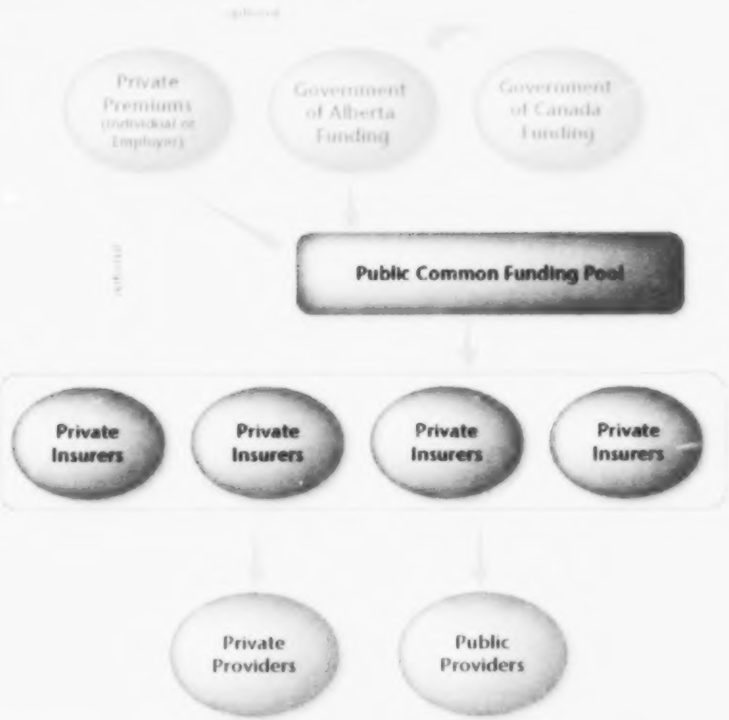
The Government of Alberta can determine the mandatory level of health care spending in the province, but the replacement portion will be subject to supply and demand pressures as would any other consumer service. This may increase total costs if the replacement insurance covers health care of higher quality (and price).

Several factors could drive higher income purchasers to private insurance, leaving the public system with a higher proportion of those unable to afford premiums. The overall impact would see an increase in the need for direct or indirect subsidies to the public plan. It is unclear, however, whether the total public funding for the “at risk” population would increase; specific plan design and funding policies would determine this. As noted previously, individuals selecting replacement coverage may be required to make some payments into the common public funding pool. Nevertheless, the funding rate needed to provide for public expenses would likely increase.

Competitive Pressure

The presence of private insurance providers fosters competitive pressure in the system. Subsidies to the public sector could distort the market by potentially reducing the size of the private sector, and thus limiting competitive pressure. This would be highly dependent on the actual relative pricing between plans.

Mandatory Private Health Insurance with Public Premium Pooling


Private Premiums (Individual or Employer)
Government of Alberta Funding
Government of Canada Funding
Public Common Funding Pool
Private Insurers
Private Insurers
Private Insurers
Private Insurers
Private Providers
Public Providers

With this conceptual model, health care insurance is provided through a privately managed plan, but with premiums provided through a common fund. A similar model was introduced in the Netherlands on January 1, 2006.

Health care recipients have a choice between private insurers that may offer multiple plans, which meet a minimum standard of coverage.

Participation in funding a common public funding pool is mandatory, although individuals and employers have the opportunity to purchase additional insurance beyond coverage funded by the pool. The public funding pool receives payments from both the Government of Alberta and the private sector.

Government of Alberta

- General revenue; and
- Health funding from the federal government.

Private Sector

- Individuals are typically the primary contributors to the funding pool. Their contributions could be offset by a reduction in income/other taxes, and the current Alberta Health Care Insurance Premium.
- Employers could be required to pay a portion of the premium (this decision may account for the level of funding currently provided by employers for the specific group of insured health services). In the Netherlands this level of contribution was set quite high, and there has been a very negative reaction from the private sector who view this as a hidden tax.

Additional coverage could be provided with individual and employer private sector premiums, including:

- Individuals who decide they would like to purchase insurance allowing access to a different level of coverage than that in the standard universal plan; and
- Employers that wish to provide employees with additional insurance coverage, to ensure enhanced medical services.

Payment from the public common funding pool to individual providers is based on either the:

- Risk rating of the specific pool of clients; or
- Costs where the insurers act as administrators on behalf of the public plan.

Regulation

Private plans require regulation and oversight for solvency and coverage levels. The Government of Alberta can determine the mandatory level of health care spending in the province, but the additional coverage is subject to supply and demand pressures, as is any other consumer service.

Private insurers make fee and payment arrangements directly with health care providers, who may be either private or public.

Plan Choice

Choice in finding a suitable insurance plan would be relatively high as insurance carriers seek to attract business.

Administrative Structure

The administration for collecting premiums is centralized; the common funding pool collects all premiums, possibly in conjunction with the income tax system.

Administration of plans is decentralized, with multiple channels for sales and multiple purchasers of health care services.

Canada Health Act

Alignment with the *CHA* principles will depend heavily on the specific plan design and funding processes, particularly the profitability associated with health insurance risk. Also, plan design elements, such as cost sharing and multiple levels of coverage, could attract penalties or the withholding of transfer payments.

Transparency of Government Support

Transparency of government support is variable. For the public portion, premiums are distinct from other government support to health care and variations in premiums could be clearly linked to changes in government support (e.g., reduction in federal health transfers increases premiums directly). There is no public funding for private insurance beyond the core.

Cost Control

Predictability

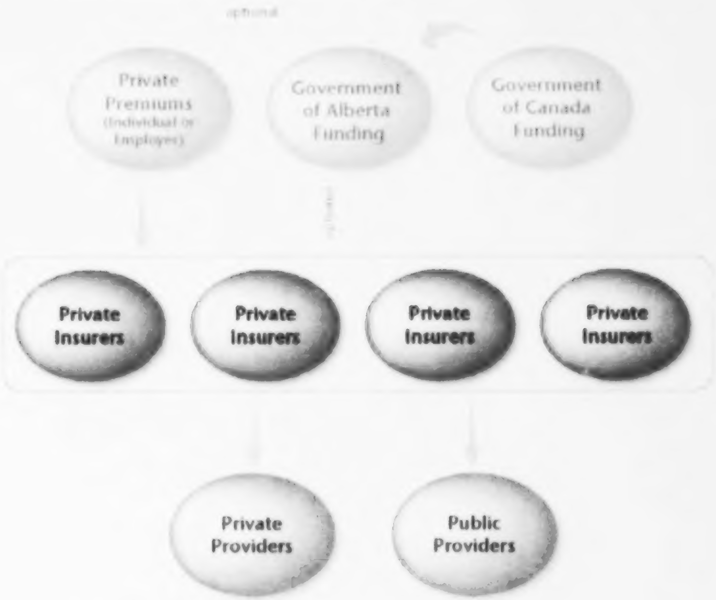
The Government of Alberta can determine the mandatory level of health care spending in the province, but the supplemental portion will be subject to supply and demand pressures as would any other consumer service.

Competitive Pressure

Pressure exists on administration and health care delivery. Each insurer would like to provide better value for the same premium. To the extent that the insurer holds funds, cash management is a potential area of competitive pressure.

Mandatory Private Health Insurance

In this conceptual model, plan design and/or benefits are mandated by the government but the coverage is purchased directly by individuals or by employers acting on their behalf. Groups who are unable to obtain coverage would require financial support, which would be funded either from the public purse or levied in the form of extra charges to those who can afford coverage.


optional
Private Premiums (Individual or Employer)
Government of Alberta Funding
Government of Canada Funding
Private Insurers
Private Insurers
Private Insurers
Private Insurers
Private Providers
Public Providers

Without risk pooling regulation to prevent client selection, universal health coverage is difficult to provide with this model for individuals or groups who are high risk candidates. Although community rating is possible, it would require regulations to ensure that plan purchasers are offered coverage at the same rate regardless of the risk factors. This would increase the risk to the insurer, and there is a high likelihood that this would result in a higher level of premiums to offset this higher risk. Thus, for universal coverage to be practically implemented for this model, a publicly or privately managed risk sharing pool is required.

Plan Choice

Choice in finding a suitable insurance plan would be relatively high as insurance carriers seek to attract business.

Administrative Structure

The mandatory private plan model has decentralized administration with multiple channels for sales and collecting premiums and multiple purchasers of health care services. It would be possible for private insurers to adopt a common claim processing standard to minimize administrative costs.

Canada Health Act

There are several areas where this model may conflict with *CHA*'s principles. However, international experience has shown that universal health care based on mandatory private insurance is possible (e.g., Switzerland).

Transparency of Government Support

Transparency would be limited, as only those receiving government support would be aware that their coverage is subsidized.

Cost Control

Predictability

This type of plan has limited ability to directly control cost, with the exception of the level of subsidies provided to various economically or health disadvantaged groups.

Sustainability of this program is variable. It is viable to the extent that market forces are able to contain costs. There is limited capacity to maintain sustainability if the private sector fails to adequately control risks. Sustainability is, to an extent, a function of the private carriers' success in building delivery networks.

Competitive Pressure

Pressure exists on administration, cash management and health care delivery – each insurer would like to provide better value for the same premium.

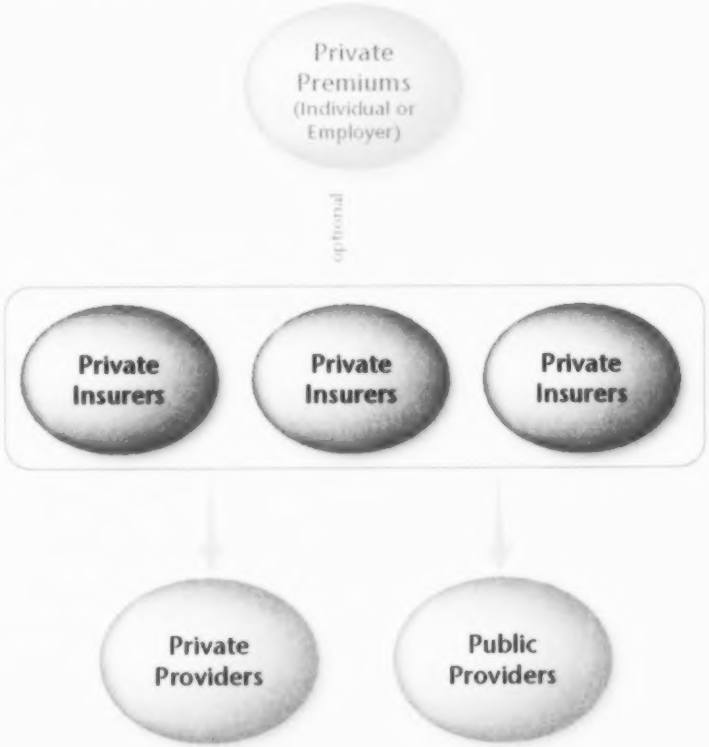
Cost control is also a function of the private carriers' success in building and managing networks of health care providers.

Optional Private Health Insurance

This is a type of plan where the purchaser negotiates the plan design. Coverage is optional and may be obtained from any private insurer on the market. Pricing is determined by competitive pressures, service delivery costs and profit expectations, as is currently the case with supplemental health insurance offered in Alberta.

Under this model, there is no universal coverage. Community rating is not possible for consumers with higher risk characteristics as those requiring greater risk for insurance would force most insurers to materially raise the premiums to unaffordable levels.

Insofar as the basic requirements of insurance models set out for this study, there is limited scope for extending this type of insurance within Alberta.



Regulation

For this model of insurance coverage, regulation is generally limited to solvency, as coverage is optional and there is often little perceived need to monitor corporate plans. Sustainability is variable insofar as those unable to pay do not have to purchase insurance.

Plan Choice

Choice in finding a suitable insurance plan would be relatively high as insurance carriers seek to attract business.

Administrative Structure

Optional private plans are decentralized, with multiple channels for sales and collecting premiums and multiple purchasers of health care services. It would be possible for private insurers to adopt a common claim processing standard to minimize administrative costs.

Canada Health Act

There are several areas where this model may conflict with *CHA*'s principles.

Transparency of Government Support

Not applicable.

Cost Control

Predictability

Optional private coverage allows for limited ability to directly control costs, with the exception of the level of subsidies that are provided to various groups (e.g., low income).

Total health services spending is likely limited by market forces – if prices become too high, fewer consumers will purchase. That is, consumers may choose self-insurance, which could become costly in the long run.

Competitive Pressure

Pressure exists on administration, cash management and health care delivery – each insurer would like to provide better value for the same premium.

Cost control is also a function of the private carriers' success in building and managing networks of health care providers.

Conceptual Model Summary

Plan Attributes	Mandatory Public Health Insurance	Mandatory Public Health Insurance With Private Supplemental Coverage	Mandatory Public Health Insurance With Private Replacement Coverage	Mandatory Private Health Insurance With Public Premium Pooling	Mandatory Private Health Insurance	Optional Private Health Insurance
Funding Sources	• Alberta government • Private sector Individuals Employers	• Alberta government • Private sector Individuals Employers	• Alberta government • Private sector Individuals Employers	• Alberta government • Private sector Individuals Employers	• Alberta government • Private sector Individuals Employers	• Private Sector Individuals Employers
Universal Coverage	Yes	Yes	Yes	Yes	Requires risk shared pool	No
Regulation	Publicly run	Required for all mandatory components of plans	Required for all mandatory components of plans	Required for all mandatory components of plans	Required for all mandatory components of plans	Limited to solvency
Plan Choice	Limited	• Limited for public plan • High for private supplement is where market size sufficient	High	High	High	High
Administrative Structure	Centralized	• Public plan is centralized • Private supplement is decentralized	• Public plan is centralized • Private supplement is decentralized	• Collecting premiums centralized • Administering plans decentralized	Decentralized	Decentralized
Canada Health Act	Dependent on plan design	Dependent on plan design	Dependent on plan design	Dependent on plan design and public administration	Dependent on plan design and public administration	Dependent on plan design and public administration

Conceptual Model Summary continued

Plan Attributes	**Mandatory Public Health Insurance**	**Mandatory Public Health Insurance With Private Supplemental Coverage**	**Mandatory Public Health Insurance With Private Replacement Coverage**	**Mandatory Private Health Insurance With Public Premium Pooling**	**Mandatory Private Health Insurance**	**Optional Private Health Insurance**
Transparency of Government Support	Variable	Variable	Variable	Variable	Limited	Not applicable
Cost Control						
Predictability	Predictable	• Public plan is predictable • Private supplement is unpredictable (market determined)	• Public plan is predictable • Replacement coverage is unpredictable (market determined)	• Public spending is predictable • Supplemental coverage is unpredictable (market determined)	• Limited ability to control cost	• Limited ability to control cost
Competitive Pressure	None	• Public plan – none • Private supplement subject to supply and demand	• Competitive system, potentially distorted by public subsidies	• Competitive administration, service provision and cash management	• Competitive risk management, administration, service provision and cash management	• Competitive risk management, administration, service provision and cash management

Prescription Drugs

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

This section is an actuarial projection and analysis of prescription drug care in the province of Alberta. At present, such care is provided both publicly and privately. Public sources of drug care are:

- Alberta Health and Wellness sponsored drug plans;
- Other Alberta ministerial drug benefit programs;
- Alberta government-sponsored drug plans; and
- Indirect Government of Alberta drug spending.

Private sources are largely private insurance carriers and not-for-profit health insurance providers, but 27% of the provincial population are currently not insured under either a public or a private plan.

Analysis identified the primary cost drivers of prescription drugs as:

- Increased drug utilization;
- Drug cost inflation;
- Aging;
- Population growth; and
- Research, which is leading to the creation of new and often very expensive drugs.

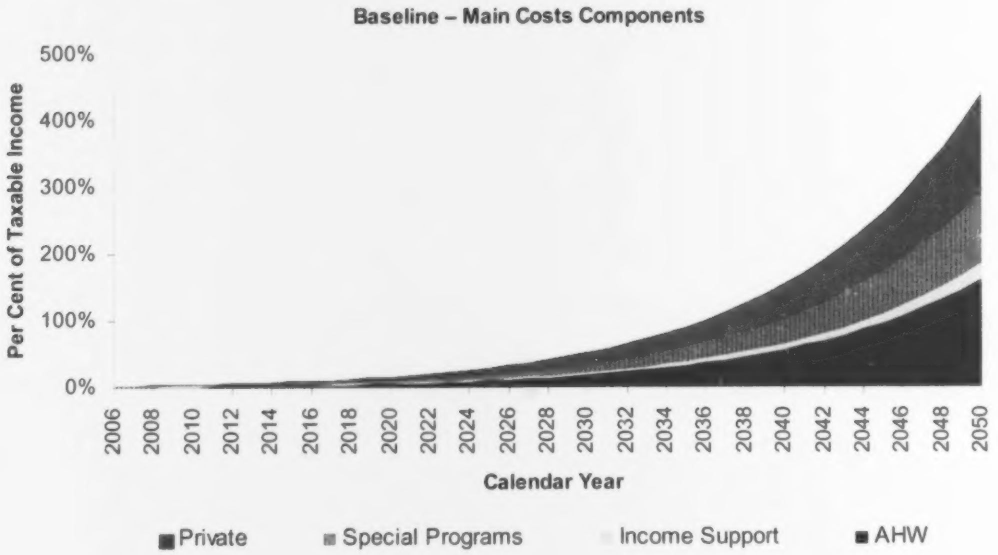
Baseline Projection

Current Cost Growth Unsustainable

The rate of increase in Alberta's drug costs is currently around 18%, and the rate of increase is accelerating. A projection was first developed, based on these trends to determine whether this rate is supportable by the economy.

A projection was developed using a base 15% cost inflation rate. This 15% is before aging, population growth and increasing utilization. The base cost projections were then constructed by multiplying the applicable therapeutic class, age and gender cell costs by the projected population. In this scenario, the total public and private drug costs would exceed taxable income by 2036. This is clearly not sustainable.

Total public private costs exceed 100% of taxable income by 2036. This is not sustainable.



Revised Baseline

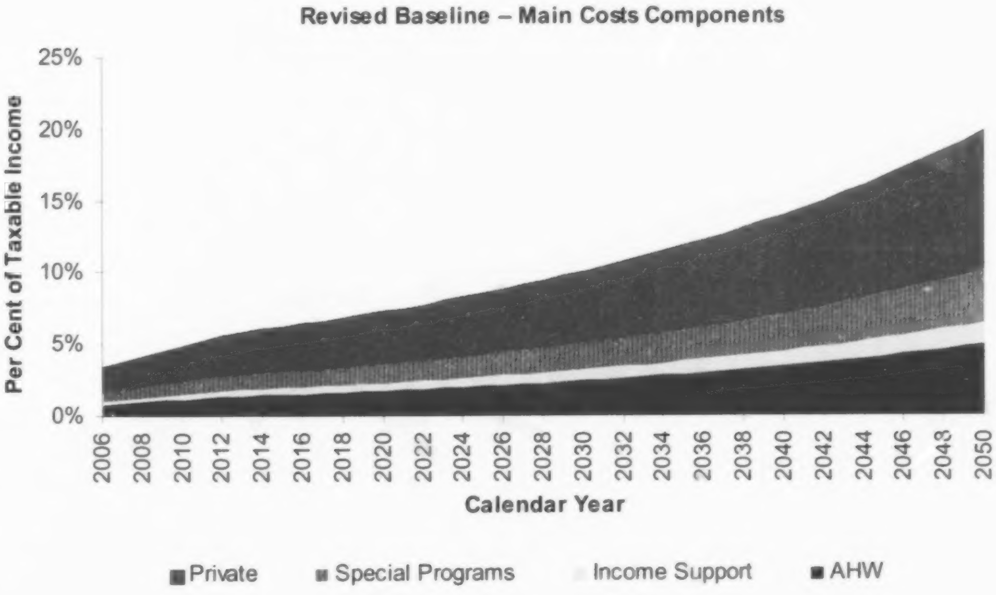
Accordingly, the baseline projections used in the actuarial modelling assume the current inflation rate decreases with the introduction of cost and demand control measures. It is assumed that the government will take the driver's seat and enforce a rational and optimal utilization of available drug budgets. The assumption that appropriate measures will be introduced is important, but is only valid if the Government of Alberta introduces measures.

Assuming accelerated implementation of cost and demand control measures, including budget control constraints, the following was built into subsequent modelling. See Considerations for Cost Control Measures later in this section.

Under the constraints, the overall growth rate (that is, including inflation, utilization, population growth and aging) of provincial drug expenses is 18% per year until 2007; then it decreases by 1.5% per annum until it reaches 8% in 2014 and subsequent years.

On this basis, the projected total cost of the existing Government of Alberta drug programs (e.g., drugs for cancer, transplants and HIV) reaches 10% of projected taxable income by 2050, whereas total drug cost reaches 20%. In the graph below, "Private" refers to employer-provided coverage, deductibles and co-insurance amounts paid by beneficiaries, out-of-pocket amounts paid by uninsured individuals as well as costs of over-the-counter (OTC) drugs.

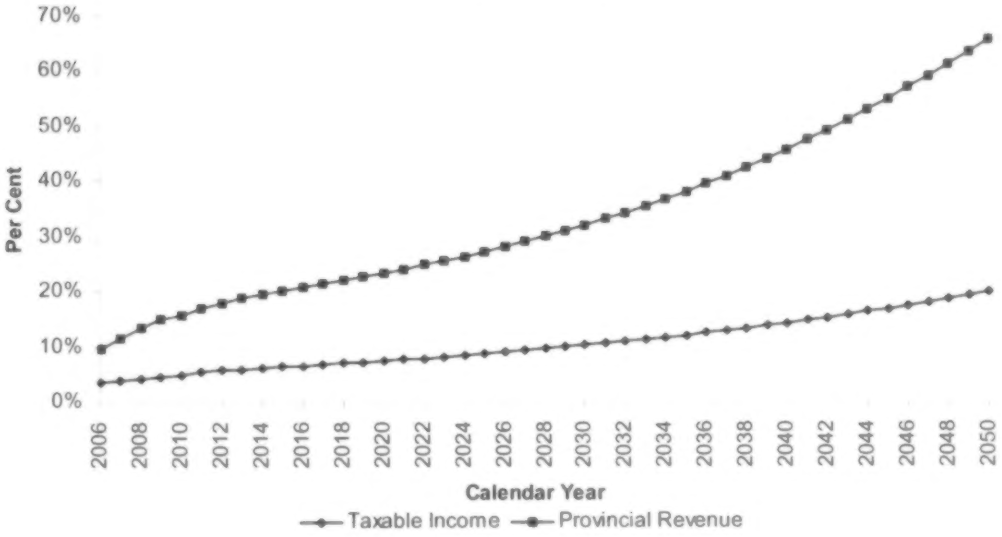
Total public and private reach 20% of taxable income by 2050.


Revised Baseline – Main Costs Components

The same projected costs, expressed in a percentage of projected provincial revenue, presents an equally challenging view: total drug costs reach 65% of provincial revenue by 2050. Since the public share happens to represent 50% of total drug costs (as seen in the preceding graph), the 2050 projected public costs represent 32% of provincial revenue. Accelerated implementation of budget constraints is not expected to have sufficient impact to produce acceptable long-range results.

Total public and private costs reach 65% of provincial revenue by 2050.

Revised Baseline – Total Costs



Cost growth with these assumptions is still unsupportable in the very long run and additional cost control measures are required.

Model Assumptions

All projections presented below are based on a level of minimum mandatory coverage that must apply to 100% of the Alberta population (except the Canadian Armed Forces, RCMP, federal inmates and others covered by federal government plans).

The minimum mandatory plan design tested includes the following key attributes:

- Current Non-Group benefits (with the current $25,000 maximum benefit eliminated); and
- A maximum out-of-pocket payment of 3%, 4% and 5% of household taxable income. For this purpose, out-of-pocket amounts include only co-insurance paid on drugs covered by the current Non-Group formulary.

Methodology

To ensure that the entire Alberta population and their projected drug use were included in the cost projections, several sources of data were used to create a complete picture. The following provides a high-level description of how costs and demographic characteristics of populations were determined for both those currently entitled to the various programs as well as those not currently insured for prescription drugs. A more detailed description is contained in the section, Actuarial Methodology, appearing later in this report.

Costs

- Claims costs were established by therapeutic class, age and gender cell using detailed drug claims paid in Fiscal Year 2004-2005 for current beneficiaries of:
  Alberta Health and Wellness sponsored drug plans;
  Other Alberta ministerial drug benefit programs;
  Alberta government-sponsored drug plans; and
  Indirect Government of Alberta drug spending.
- It was concluded, from a review of the Public Use Microdata File of the Canadian Community Health Survey Cycle 2.1 (2003), that the health characteristics (within a given age and gender cell) of those not currently insured for drugs could be assumed to be the same as those that are insured for prescription drugs. It was therefore assumed that, within each age and gender cell, the costs for the 27% of Albertans currently not insured by a public or private plan were the same as those of the average population.
- For those covered by employer contracts, therapeutic class, age and gender cell costs of a large employer plan were used. These costs were then multiplied by a factor so that total drug costs in Alberta in Fiscal Year 2004-2005 matched the amount derived from CIHI statistics.

Population

In a similar manner, population projections with income and age data were created from multiple sources.

Partial demographic data was available for the population covered by Alberta Health and Wellness. This was completed based on the assumption that it corresponded to the population of claimants but the total was then adjusted to match statistics provided by the Government of Alberta.

- It was assumed that the demographic composition of the population covered by AHRE and Alberta Seniors and Community Supports corresponds to the population of claimants, but the total was adjusted to match statistics provided by the Government of Alberta.
- The demographics of the estimated 27% of the population not covered by existing drug plans were derived from the Canadian Community Health Survey (CCHS).
- The population covered by employer groups was determined by subtracting those covered above from the total population.
- Personal and household income data was provided by Statistics Canada and the Canada Revenue Agency.

Cost Control Assumptions

Three different scenarios were modelled, each representing a different rate of implementation of budgetary cost controls as a level to limit prescription drug costs.

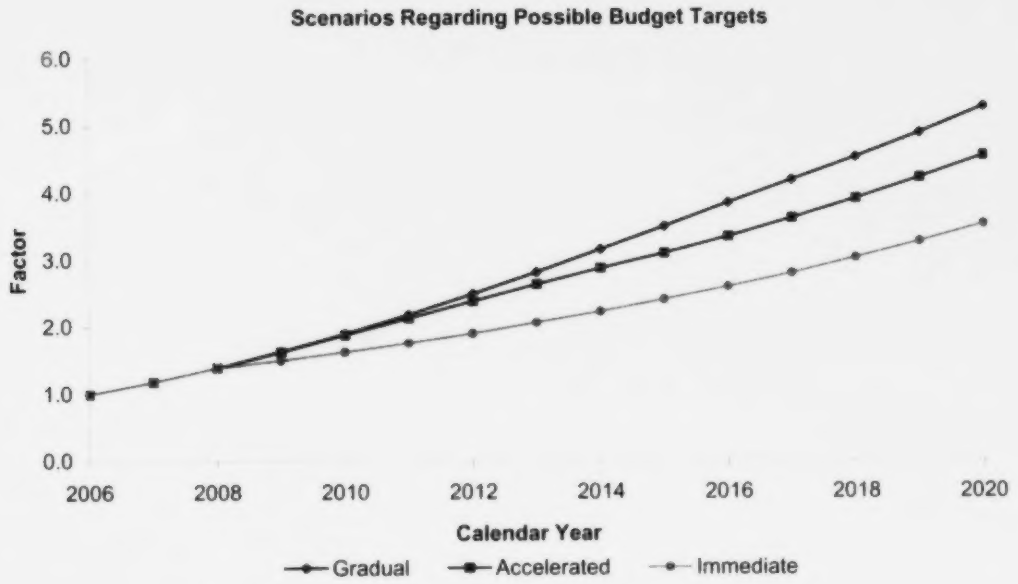
- Under the Immediate scenario, growth was assumed to be limited to 8% in 2008 and beyond.
- Under the Accelerated scenario, growth rates were scaled to reach 8% by 2014.
- Under the Gradual scenario, growth rates reached 8% by 2017.

Scenarios Regarding Possible Budget Targets

	Implementation of Budget Constraints[1]			Cumulative Costs		
Year	Gradual[2] (%)	Accelerated[3] (%)	Immediate[4] (%)	Gradual	Accelerated	Immediate
2006	18.0	18.0	18.0	1.00	1.00	1.00
2007	18.0	18.0	18.0	1.18	1.18	1.18
2008	17.0	16.5	8.0	1.39	1.39	1.39
2009	16.0	15.0	8.0	1.63	1.62	1.50
2010	15.0	13.5	8.0	1.89	1.87	1.62
2011	14.0	12.0	8.0	2.17	2.12	1.75
2012	13.0	10.5	8.0	2.48	2.37	1.89
2013	12.0	9.0	8.0	2.80	2.62	2.05
2014	11.0	8.0	8.0	3.14	2.86	2.21
2015	10.0	8.0	8.0	3.48	3.08	2.39
2016	9.0	8.0	8.0	3.83	3.33	2.58
2017	8.0	8.0	8.0	4.17	3.60	2.78
2018	8.0	8.0	8.0	**4.51**	**3.89**	**3.01**
2019	8.0	8.0	8.0	4.87	4.20	3.25
2020	8.0	8.0	8.0	5.26	4.53	3.51

Notes

1. Under all scenarios, once the allowable increase of 8% is attained, it remains constant until 2050.
2. Allowable increase is reduced by 1% per annum, starting in 2008 until it reaches 8% in 2017.
3. Allowable increase is reduced by 1.5% per annum, starting in 2008 until it reaches 8% in 2014.
4. The 8% maximum allowable increase applies from 2008.



It is assumed that 8% as an ultimate inflation rate is realistic based on:

- An assumed general consumer price index of 3% in Alberta;
- An estimated average increase in costs of from 1% to 2% per year resulting from demographic factors;
- Various strategies to optimize drug utilization and control costs; and
- Budgetary caps to ensure the anticipated inflation rate is not exceeded.

There is sufficient evidence to justify the assumption that the Government of Alberta can contain spending to this limit.

Cost control methods include continuing education programs to:

- Reinforce the use of first line therapies with evidence of effectiveness along with evidence of cost and cost-effectiveness to most patients;

- Promote better control over second and third line therapies (mostly single-source drugs subject to prior authorization, step therapy or lower levels of reimbursement); and
- Promote higher levels of awareness of risks associated with replacing drugs with proven safety records by new drugs.

It has also been assumed that the introduction of additional mechanisms will control the cost of prescription drugs in Alberta. These may include:

- Drug plan management
- Electronic claims management and real-time adjudication capabilities;
- Plan design (including sharing and step therapy); and
- Improved purchasing and distribution capabilities

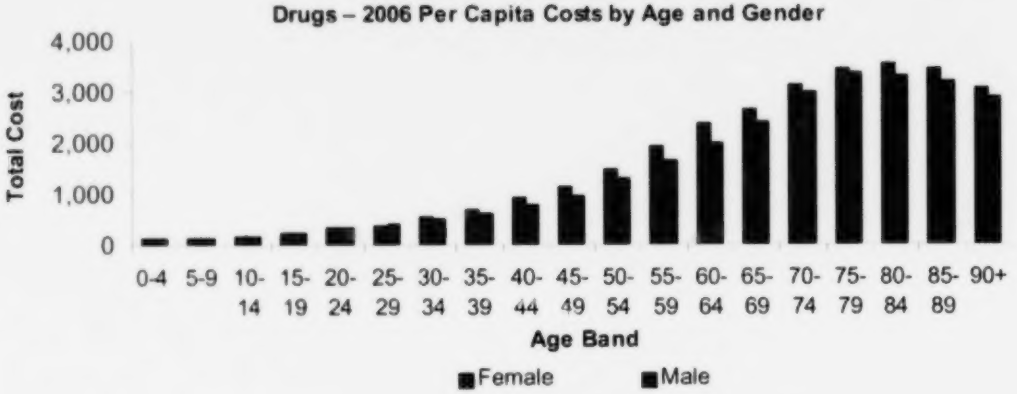
Projections

The base cost projections were then constructed assuming the Accelerated Implementation of budget constraints. The projected population was developed using Low, Medium and High projections already in use by the province. However, these projections were adjusted to account for future mortality improvement according to established actuarial practice.

Per Capita Costs

The next graph represents the per capita costs of prescribed and non-prescribed drugs used in Alberta in 2006. These costs do not include drugs administered within hospitals, long-term care facilities or similar institutions. This is likely the explanation for the reduction in costs at higher ages.

In 2006, 33% of total costs arise from those aged 65 or more. Noting the rapid increase in per capita costs by age and the expectation of an aging population, it is clear that pre-funding is potentially very helpful in providing for the expected costs of public insurance.



Per capita drug costs rise very steeply with age. One-third of 2006 costs arise from those aged 65 or more. This proportion will increase as the population ages.

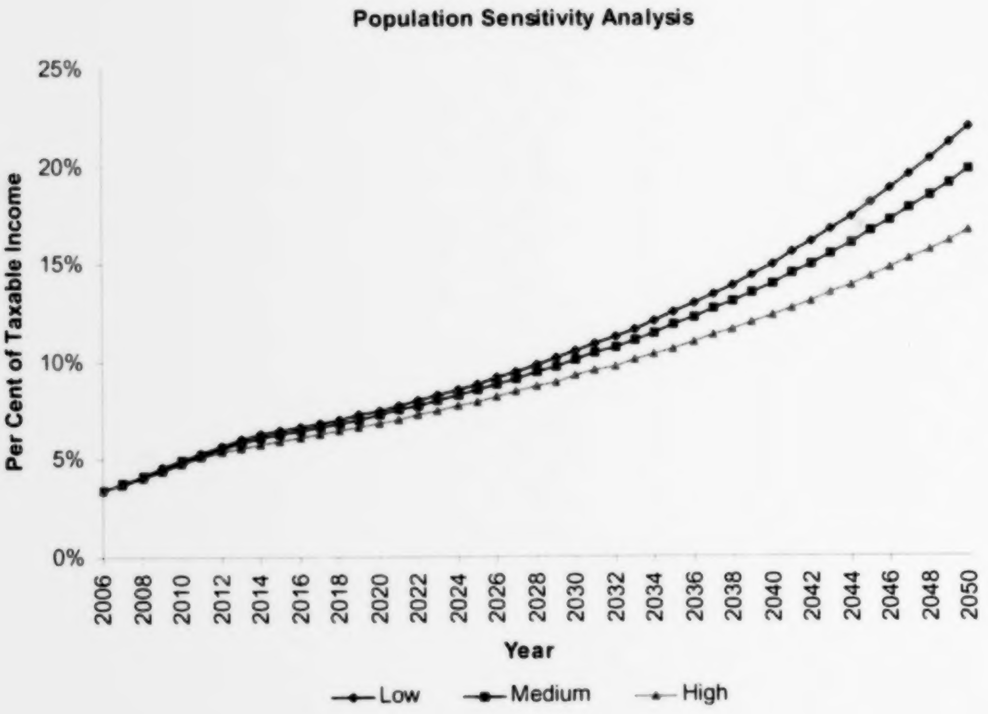
Total Cost by Age and Gender – 2006

Overall Age Band	Female	Male	Total
0 - 4	13,532,534	13,330,154	26,862,688
5 - 9	14,762,913	14,435,372	29,198,284
10 - 14	20,287,534	20,137,443	40,424,977
15 - 19	26,109,391	30,737,235	56,846,626
20 - 24	42,242,701	43,084,280	85,326,981
25 - 29	47,948,467	54,941,262	102,889,729
30 - 34	64,172,554	64,660,449	128,833,003
35 - 39	83,366,880	80,255,038	163,621,918
40 - 44	122,879,884	108,775,850	231,655,734
45 - 49	154,040,710	138,652,229	292,692,939
50 - 54	172,101,175	158,455,773	330,556,948
55 - 59	180,392,095	156,545,888	336,937,982
60 - 64	161,865,385	136,676,451	298,541,836
65 - 69	139,845,760	122,597,887	262,443,647
70 - 74	140,479,885	123,425,701	263,905,586
75 - 79	130,926,205	106,315,316	237,241,521
80 - 84	103,174,230	62,386,583	165,560,812
85 - 89	59,288,027	27,726,053	87,014,080
90 +	25,131,139	8,968,353	34,099,491
Total	**1,702,547,466**	**1,472,107,317**	**3,174,654,783**

Population Sensitivity Analysis

Cost projections using the Low, Medium and High population scenario are based on the Accelerated Implementation of budget constraints with respective ultimate increases of 7.5%, 8% and 8.5%. Although a lower population growth results in lower future costs in dollars (it is assumed that the increase is only 7.5% instead of 8%), it also implies an aging of the population and, hence, a slower growth of taxable income. This means that the cost of drugs, when expressed in a percentage of taxable income, is higher under a low population growth scenario.

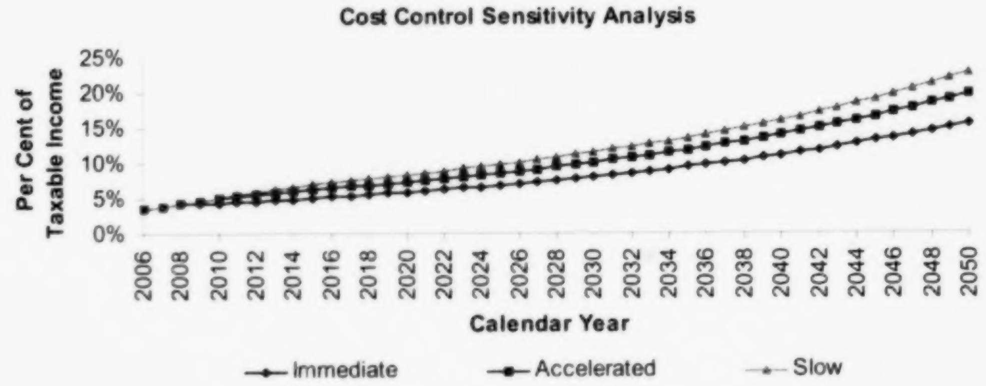
Population is an important cost driver

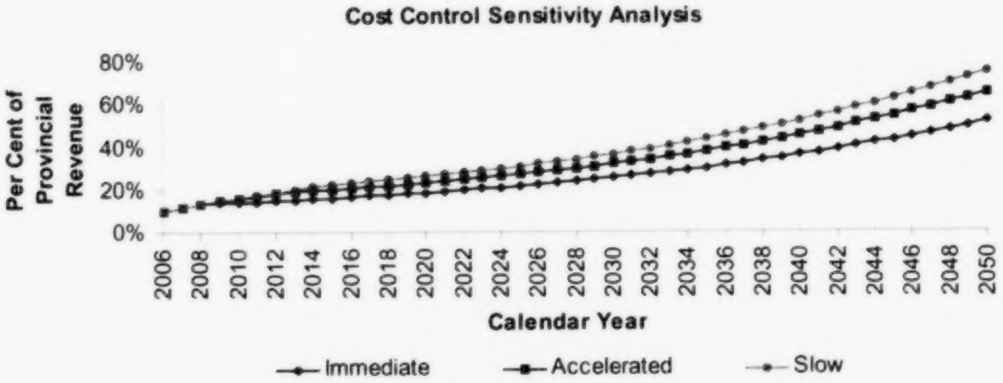


Cost Control Implementation Speed Sensitivity

As expected, the speed of implementation of budget constraints has a major impact on projected costs, as illustrated by the following graphs. The three implementation schedules are described in Cost Control Assumptions earlier in this section.

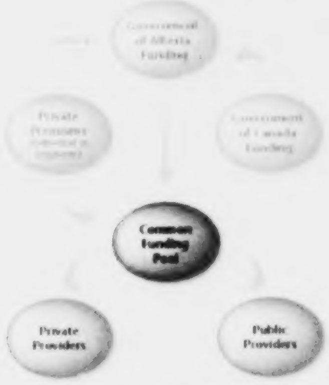
The choice of the budget implementation schedule is crucial to the sustainability of Alberta's drug costs.





Mandatory Public Drug Insurance

The mandatory public drug insurance model was the first insurance model adopted for more detailed testing. In this model, the province of Alberta would provide full drug coverage to all Albertans, using sound insurance principles to develop premiums, project costs and manage the plan.



From page 2-12

The assumed plan design is that the current Non-Group benefits (with the current $25,000 maximum benefit eliminated) is the mandatory plan, applicable to current uninsured individuals as well as those currently covered by employer or union plans. The government-provided coverage and benefits for other persons are assumed to continue without changes except that the current $25,000 maximum benefit is eliminated for Alberta Health and Wellness drug benefit plan beneficiaries.

This effectively results in a reduction of benefits for individuals currently insured under employer and union plans since these plans are more generous than the current Non-Group benefits. It is assumed that the use of prescription drugs by such persons would remain the same and that the reduction of coverage would be paid out-of-pocket by beneficiaries.

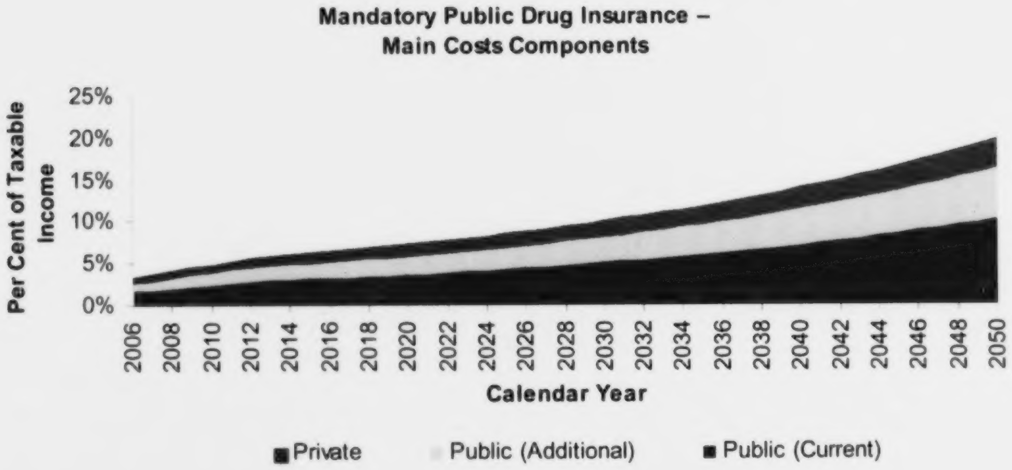
Note that the relative merit of each model is independent of the assumed plan design. Such a plan would incorporate:

- Deductibles and maximum out-of-pocket amounts vary with the capacity to pay;
- Tiered co-insurance percentages apply; and
- All drugs currently covered by the special drug programs (for instance drugs for cancer, HIV and transplants) are included within the mandatory plan.

However, since the parameters of this ideal plan still need to be determined, it cannot be used in this section to compare the various models.

Cost Projections

In the next chart, "Public (Additional)" refers to the current 27% of the population that are not insured and to the portion of current employer and union plans that correspond to the current Non-Group benefits.



Pre-Funding

Pre-funding is a means of stabilizing rising costs over a specified number of years by charging a level premium that is projected to be sufficient to pay the costs over a specified period. (In the projections, the fund is reduced to zero by the end of 2050.) In effect, it averages the costs, so that initial funding contributions exceed current costs, creating a surplus that is run down in later years when costs exceed available funding. The surplus is invested, creating investment income that reduces the cost. Such surplus must be earmarked for payment of future claims.

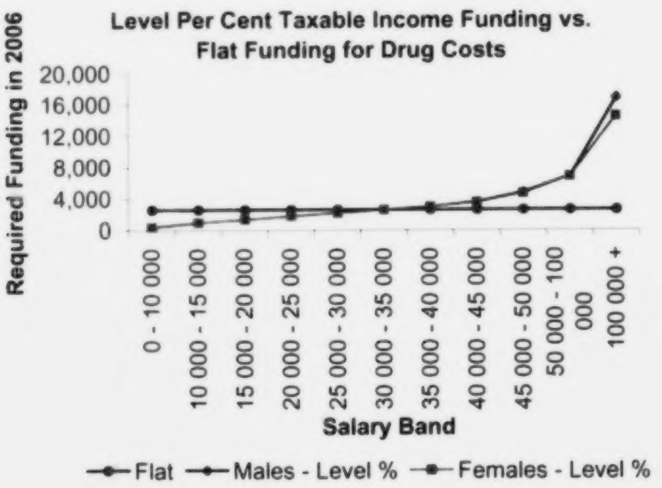
The level per cent of taxable income basis for expressing the premium is a logical basis to use, because taxable income is a readily recognized index that ensures a reasonable match between required funding and ability to pay. It does, however, have one deficiency – a percentage is not necessarily easy to interpret in dollar terms. Thus, the flat dollar funding contribution per capita that would pre-fund all projected costs to 2050 was calculated. This flat dollar charge gives a useful estimate of the average impact of funding on all Albertans, ignoring differences in income. As such, it is essentially an average across all income levels and is provided as a rough measure, rather than a recommended approach.

This flat dollar amount is $2,603 per capita. In determining this amount:

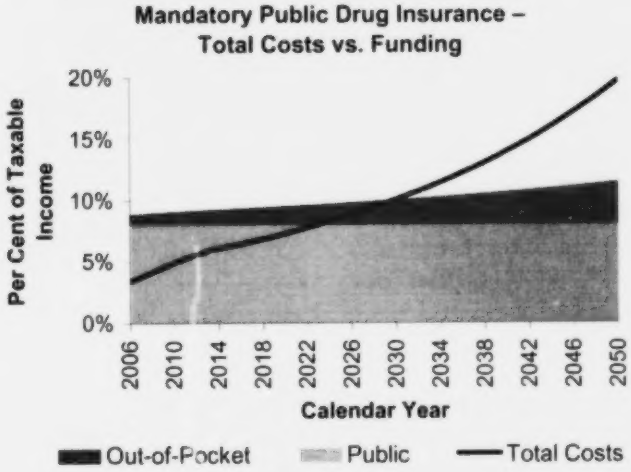
- The flat amount was indexed at 4% per year; and
- Albertans aged less than 16 were excluded from the calculation.

This compares with the level percentage of taxable income specified later in this section (7.98%).

The following graph compares the flat charge with the level per cent charge, using 2006 taxable income, separately for males and females.



With pre-funding, the public share of the cost is a flat 7.98% of taxable income of the entire population. This percentage applies from 2006 to 2050.



If a maximum out-of-pocket cost were included, the additional cost (expressed in level percentage of taxable income) would be:

Maximum Level	Cost (as a Level Per Cent of Taxable Income)
3% of Household Income	0.37%
4% of Household Income	0.30%
5% of Household Income	0.25%

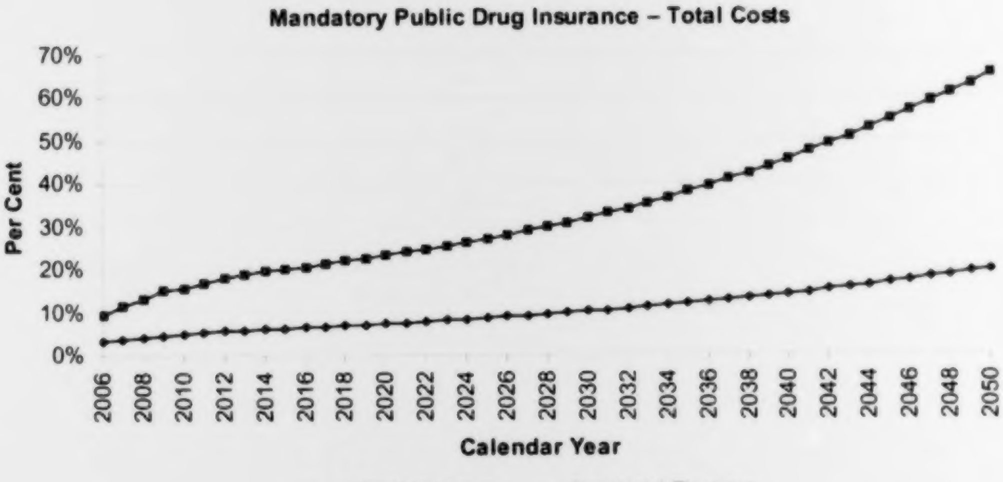
These relatively low changes are explained by the fact that the Non-Group formulary excludes some expensive drugs (such as cancer treatment) that are paid by Alberta Health and Wellness special drug programs.

The additional cost for such a maximum would need to be funded from other sources. Examples include an extra premium from the insured population or a contribution from the province's general revenue fund. Note as well that the government would need to determine how to provide the full mandatory coverage for those who could not afford to pay the required premiums.

Sustainability

Pre-funding significantly increases the sustainability of the plan, first by stabilizing the expected cost and second by generating investment income to pay part of the costs. The current pay-as-you-go system does not build up funds to generate investment income, so the aggregate cost to Albertans is higher over time than would be the case under a pre-funding model.

Total public and private costs are almost identical to those of the revised baseline.



Opportunity for Choice

With a single provider, there is little opportunity for choice.

Opportunity to Link to Behaviour

Linking coverage to behaviour could require differential treatment of Albertans based on health status and lifestyle choices. For example, restricting coverage available to smokers or to the obese would be highly controversial to bring about. Such a decision would require careful policy examination by the province.

Another approach is through plan design, for instance, by having deductibles and other plan features that make users share the financial implications of their drug consumption (which is often driven by lifestyle).

Implementation

Implementation would be complex – the private industry is currently very involved in the insurance and delivery of prescription drug care to Albertans. It can be anticipated that they would not welcome a mandatory public plan that would reduce their premium volumes.

Conclusion

- Mandatory public coverage ensures universal coverage for all Albertans.
- Implementation would be complex and require extensive preparation with the private insurance industry.
- The public model enables Alberta to exercise some degree of cost control by limiting available funding.
- Limiting funding does not in itself limit demand growth.
- The mandatory public model reduces employee and employer choices without materially reducing costs.

Mandatory Public Drug Insurance with Private Replacement Coverage[14]

Under this model, it would be mandatory that all Albertans be covered by a prescription drug plan at least as generous as the Mandatory Minimum Plan. For cost projection purposes it is assumed that this Minimum plan is the Non-Group benefit and that current employer plans would not be affected.

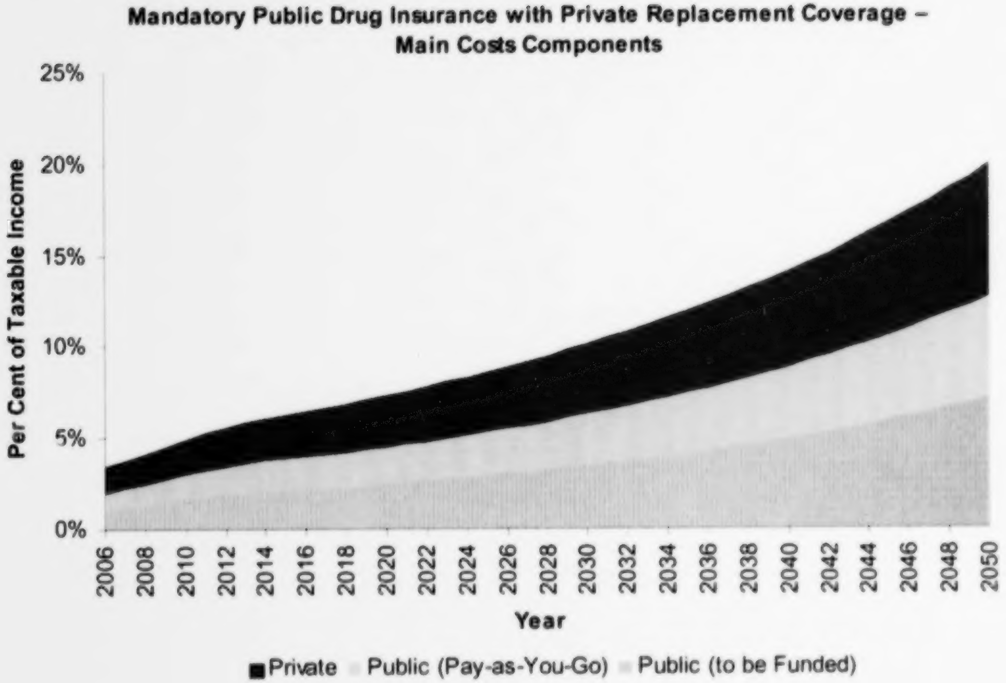
Private Providers
Public Providers

From page 2-16

There will be no change to existing group plans, which would then continue as they do at present. Likewise other existing coverages would not change. Thus, there would be minimal disruption to the current arrangements.

Cost Projections

Public costs reach 13% of taxable income by 2050.

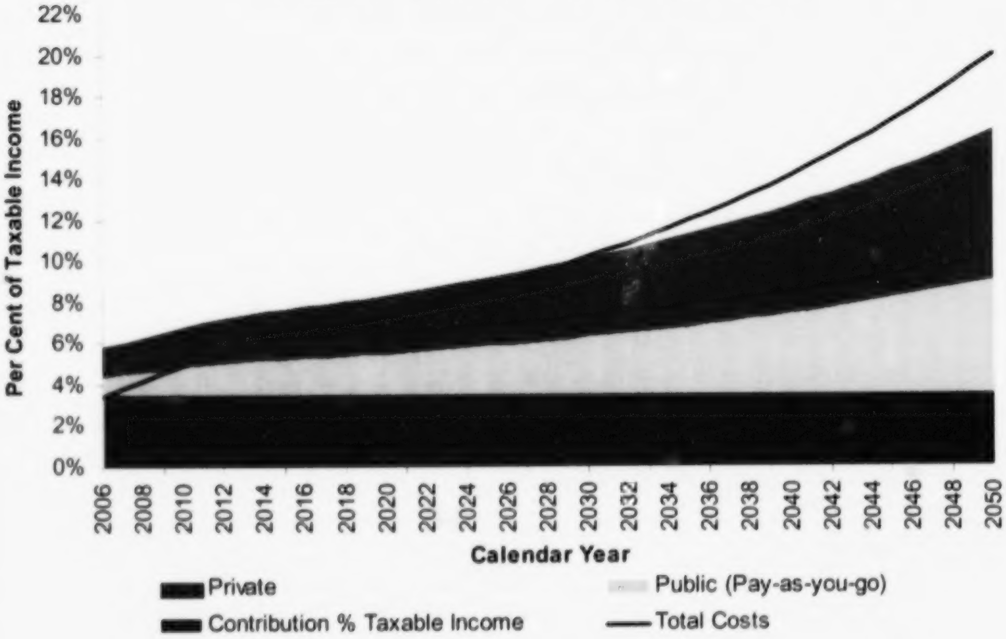


Pre-Funding

This model blends public costs that could be pre-funded, (seniors and special support plans, payable by the entire population), public costs that would operate on a pay-as-you-go basis and private plans that would continue to operate on an annual premium basis, without pre-funding. This limits the potential benefits of pre-funding to a public plan, but it is believed that private insurers will not be willing to underwrite the long-term risk of claims inflation and utilization that results from pre-funding approaches.

Because of the larger role of the private sector, the impact of pre-funding is not as important as in the mandatory public model.

Mandatory Public Drug Insurance with Private Replacement Coverage – Total Costs vs. Funding



Sustainability

This arrangement would be somewhat more sustainable than the current model through the inclusion of a pre-funding element.

Opportunity for Choice

This offers as much choice as the current arrangements.

Opportunity to Link to Behaviour

There is little opportunity to link coverage to behaviour, except through the public plans, in which case the considerations outlined in the Mandatory Public scenario apply.

Implementation

Implementation would be relatively easy, but the following two issues should be mentioned:

- A method would be required for plan sponsors to annually report to the government that a given individual was covered for prescription drugs during a certain number of months. The T4 could likely be used for this purpose.
- Employers (and their insurers) would not be able to deny mandatory coverage to employees, their spouses or children. Some private plans, especially smaller ones, may be subject to high claims fluctuations due to individuals they would decline in the current system. A similar situation exists with the public-private mix plan in Quebec. Insurers have responded by introducing a pooling of large losses that applies to all drug contracts in the province. Such an arrangement could be set up in Alberta.

Conclusion

- This arrangement offers minimal disruption to the current arrangements.
- It provides universal coverage. Employers would have to provide at least the mandatory coverage to their pre-65 employees and their spouses and children.
- Employers could benefit from prices and fees negotiated by the government with dispensers, wholesalers and manufacturers.
- This model enables Alberta to exercise some degree of cost control by limiting funding and actively managing the minimum mandatory core benefit list.
- Private insurers could be allowed to offer supplemental or additional coverage to persons covered under the public plan, thus increasing choice.

Mandatory Private Drug Insurance with Public Premium Pooling

From page 2-18

This insurance model is based on the following:

- The provincial government would provide funding either in a similar way to the province's current system or through a pre-funding model. Under a pre-funding model, the population would pay into a common pool of public funding at a rate expected to fund projected costs over a specified future period.
- In support of this system, individuals would need to select coverage from private carriers.
- The required insurance premiums for each private insurer would then be determined and distributed by the government based on the risk characteristics of each carrier's insured population.
- The types of plans offered would need to meet minimum standards of coverage defined and regulated by the government.

Under this arrangement, private carriers would not be allowed to revise their premium rates in an unregulated fashion. Instead, their pool of available premiums would be determined by the provincial government. Private carriers are then faced with delivering on their benefit commitments, providing for their own administrative expenses and achieving required profit margins within the constraints of available funding. To deal with these considerations, private carriers are expected to develop provider networks to negotiate compensation arrangements that fit within funding constraints. This would constitute a change in business focus for private carriers; one that they might not welcome.

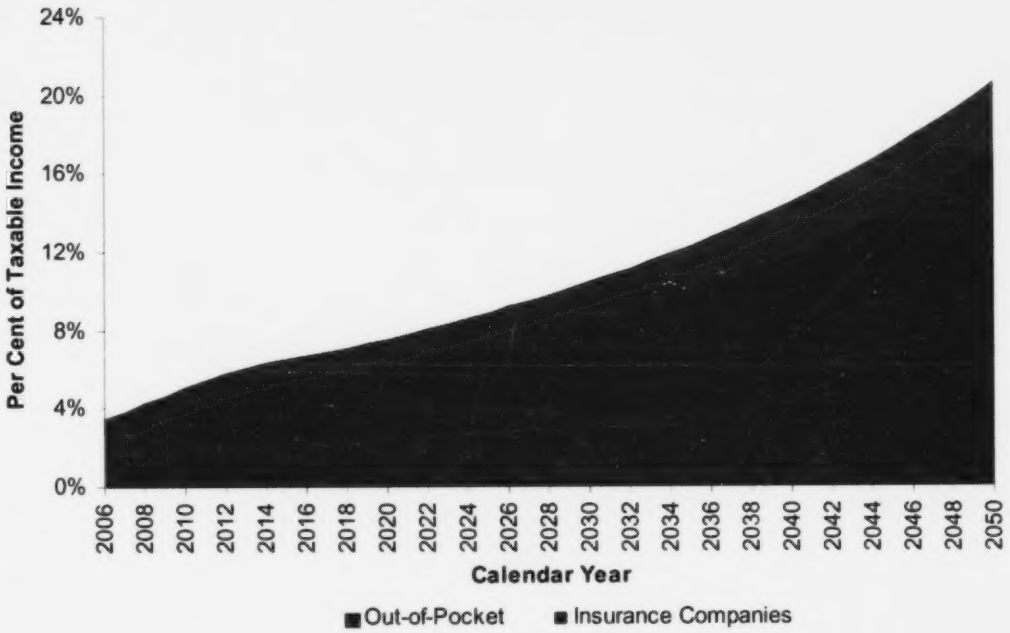
Moreover, pharmacists might also be resistant to this approach, as there is no incentive for them to develop a network and agree to lower drug costs.

Because private insurers have limited opportunity for productivity gains in the drug area, costs are highest in this model.

Cost Projections

This model does little to address the accelerated growth of drug costs, unless private carriers succeed in identifying and implementing measures that have this impact. However, their ability to do this is no greater under this model than it is under the current arrangement.

Mandatory Private Drug Insurance with Public Premium Pooling – Main Costs Components

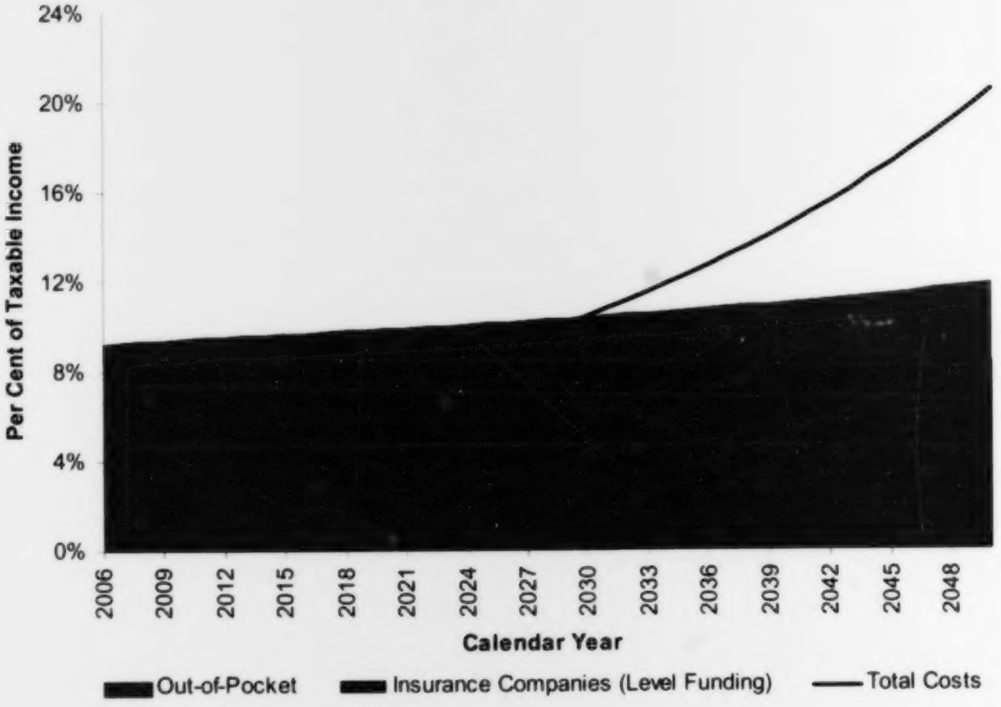


Pre-Funding

Pre-funding is not expected to be acceptable to private carriers. However, the government could still adopt a pre-funding method for the determination of the public pool of funds that would be used to pay the private premiums. The total costs are projected to rise from about 4% of taxable income to about 20% by the year 2050. A pre-funded cost would represent about 9% of taxable income.

In this model, pre-funding is done within the public pool.

Mandatory Private with Public Premium Pooling – Total Costs vs. Funding



Sustainability

If the government can successfully limit available funding and private carriers can build profitable businesses on this basis, this would be a sustainable model.

Opportunity for Choice

There is extensive choice available to individual Albertans under this arrangement, limited potentially only by the extent of group insurance, under which the choice of carrier is made by the plan sponsor.

Opportunity to Link to Behaviour

There is limited opportunity to link behaviour.

Implementation

Implementation issues from the insurer's perspective have to do with ensuring adequate coverage for the uninsurable on terms that the private industry will accept. Issues also arise in connection with the insurer's acceptance of government control over how much premium revenue they will receive to honour their insurance commitments and meet stockholder profit expectations. Other than these points, this model closely resembles the current system for private carriers.

Conclusion

- This model has not been market-tested over time, so its true feasibility is not known.
- Success is a function of private carriers' abilities to run their businesses within revenues determined or constrained by government.
- Government would need to play an active oversight role.
- This model, when applied to prescription drugs, is more complex and expensive than the two other models discussed in ths section.

Continuing Care

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

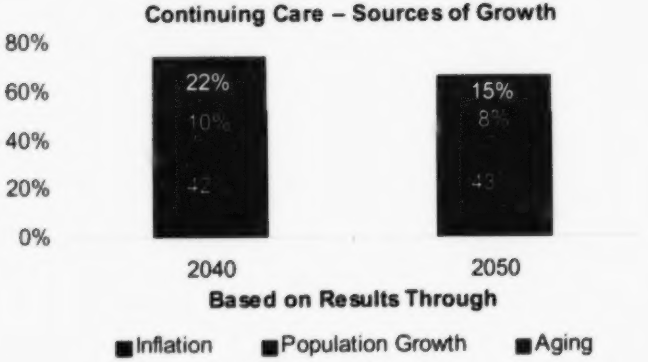
This section is an actuarial projection and analysis of continuing care in the province of Alberta.

Analysis identified the following primary cost drivers of continuing care:

- Salaries;
- Capital costs; and
- Aging.

The current trend of salaries and capital costs is not excessive in comparison with general inflation and economic growth rates, but it is expected that population aging will create a material increase in costs.

The following graph displays the key sources of growth both through the year 2040 and over the entire projection period (based on the Mandatory Public scenario).

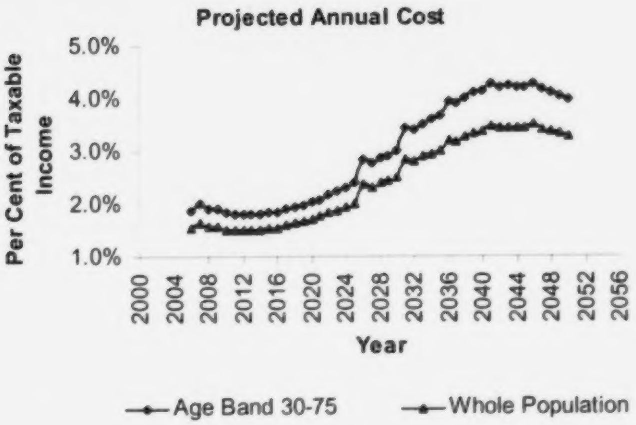


For continuing care, cost inflation drives costs, but unlike the other benefits, the significance of population aging is materially greater. This result shows how the disproportionately large costs of continuing care at later ages means that aging is relatively more important than in other benefits, where claim costs do not slope quite as steeply by age.

Pre-funding the increasing costs of continuing care was identified as the primary technique for minimizing the aging population effects.

No effective insurance policies were identified to directly reduce costs, although there may be scope to do so through operational efficiencies and increased use of capital. A detailed analysis of these approaches was outside the scope of this study.

Finally, a 45-year projection was required to fully account for the aging population and the pre-funding requirements. Although necessary, projections of this duration are highly sensitive to cost assumptions due to compounding effects. Premium and cost calculations would need to be continually revised to reflect underlying changes in the delivery of continuing care, as they impact short and long-term cost projections.



Continuing care is provided to home living based clients, facility based clients and supportive living based clients.

Home Living Based Clients

The main categories of clients are short-term, long-term and palliative. Services include assessment and coordination, nursing and therapy services, personal care, home making, social support and household operation.

Facility Based Clients

Long-term care facilities provide a range of health services to frail, disabled or chronically ill residents. Residents are based in facilities and are not able to live at home. Many services are offered on a 24-hour basis. Specialization has resulted in some facilities offering sub-acute care, respite care, palliative care and services to people with Alzheimer's or other dementias.

Long-term care facilities can either be owned and operated by the public sector (regional health authorities), not-for-profit or for profit organizations. There are approximately 208 long-term care facilities with 14,300 beds in Alberta.[15]

Supportive Living Based Clients

Supportive living is a conceptual and operational approach to provide continuing care services to seniors and adults with developmental or physical disabilities, while allowing them to live outside of an institutional setting. It enables the greatest amount of independent living possible within a series of medical, social and financial constraints.

Currently, there are approximately 20,000 supportive living spaces in Alberta in buildings owned and operated by public management bodies, as well as private and non-profit housing operators. Spaces are available in:

- Lodges;
- Enhanced lodges;
- Group homes;
- Assisted living; designated assisted living, adult family living and family care homes.[16]

Baseline Projection

Baseline projections are based on Scenario 2 of the Alberta Health and Wellness Regional Continuing Care Model (RCCM).[17] This scenario assumes a "medium-shift" from facility-based services to community-based services until 2050.

Subsequently, the RCCM cost projections were revised in the following ways:

- Alberta Finance's medium population projection was revised to reflect anticipated improvements in mortality rates;
- Unit cost inflation was increased to 4% to reflect anticipated trends;
- Percentage of total funding allocated for capital expenditures was increased to recognize obsolescence;[18] and
- Expected costs from implementation of the "What We Heard & Draft Recommendations" produced by the Task Force on Continuing Care, were incorporated into the cost projections.[19]

As in the RCCM model, it is assumed that resident accommodation charges cover related costs, and that this policy will continue (note that accommodation charges and expenses are excluded from the current RCCM model).

The baseline projection can be broken down into three phases: 2005 to 2015; 2016 to 2040 and after 2040.

2005-2015

Costs will remain largely level, or may slightly decline, in proportion to provincial personal taxable income. There is no question that costs will be rising, but less so than economic growth and personal income. A moderate increase in use of supportive living is offsetting some of the cost increases associated with improving care. The effect of these additional expenses is to increase the level funding contribution by 0.1% of taxable income (assuming contributions by the whole population).

2016-2040

A significant shift occurs during this period as the working population's proportion of total population declines, while there is a steady increase in demand for continuing care. This aging effect is compounded by the capital costs associated with high demand for long-term care facilities.

Taken together, the proportion of personal income needed to support continuing care will double during this period.

After 2040

Although the costs of providing continuing care are still rising, this is offset by a reduction in the need for capital expenditure. Essentially, there is no need to build additional long-term care facilities and this reduces cost.

Alternative Payer Approaches

Two different approaches were modelled to reflect different policies for collecting continuing care payments:

- *Universal premium base* – This model assumes that the entire working population is required to fund continuing care until they go into a continuing care program (i.e., premiums are collected until claims begin). This approach spreads the burden across the widest number of people, reducing the cost for those contributing.
- *Limited premium base* – This model assumes that continuing care payments are only collected from the population between the ages of 30 and 75. These ages were selected because:
  - Some jurisdictions do not require these types of premiums from younger people entering the workforce on the assumption that they need assistance when they are "starting out"; and
  - If premium payments continue beyond age 75 until someone enters continuing care, there will be a marginal incentive to enter continuing care earlier. Two methods can be used to avoid this problem:
    - Do not stop premiums when a beneficiary enters a long-term care facility; and
    - Discontinue premiums once the Index of Independence in Activities of Daily Living attains a given level (e.g., "D").

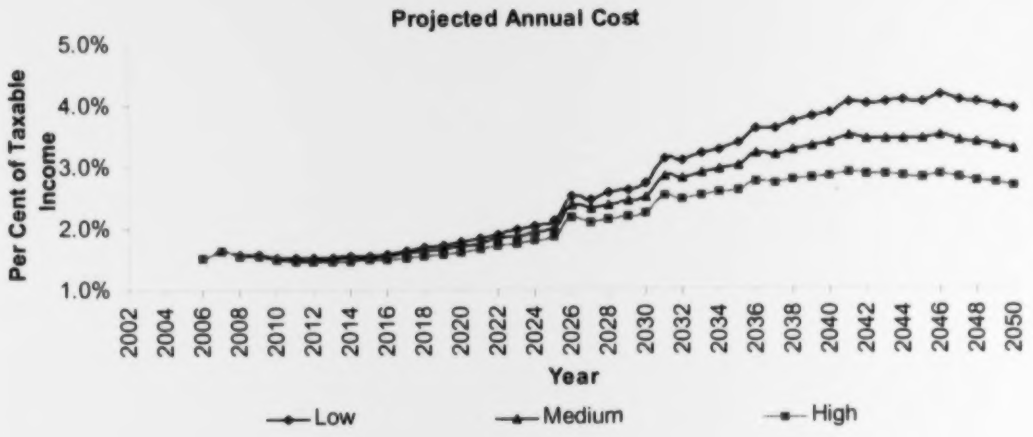
      This applies no matter if the beneficiary receives home based or facility based services.

Population Sensitivity

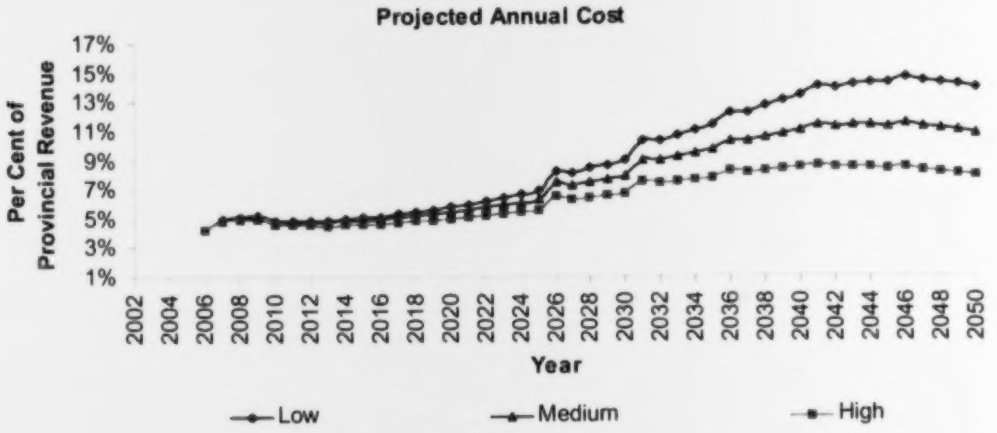
With population aging as a key driver of rising continuing care costs, changes to the population projections have a significant impact.

For example, the projected annual cost of continuing care against total provincial taxable income is 3.5% when the base (or medium) Alberta Finance population projection is used. When the high population projection is used, assuming a higher birth rate and net immigration rate of working age population, the cost to taxable income ratio falls to 2.8%. Should population growth fall short of the medium population projection and have an older average age, the cost to taxable income ratio increases to 4.2%.

Projected 2050 costs range from 2.8% of taxable income (high population scenario) to 4.2% of taxable income (low population scenario)



Similarly, continuing care costs as a proportion of provincial revenue are favourably impacted by higher population growth.



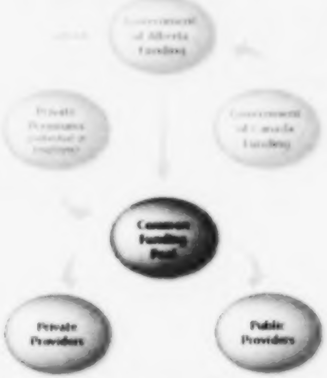
Consequently, for continuing care, increases in net immigration and population growth can improve sustainability. However, the cost to taxable income ratio will still double over a 35-year period with the most favourable demographic projection.

Need for Mandatory Insurance

Due to the anti-selection phenomenon[20], for an insurance model to replace the current pay-as-you-go approach, coverage will need to be mandatory and universal. Otherwise, there would be a significant risk that large portions of the population will be uninsured at the time they require continuing care, and will therefore require some other form of social assistance. Essentially, these individuals will make no payments and then rely on the government to support them. Mandatory health insurance ensures everyone pays for services they could potentially use.

Mandatory Public Health Insurance

The introduction of mandatory public health insurance for continuing care changes the current funding mechanism without materially impacting the provision or management of delivering services.



From page 2-12

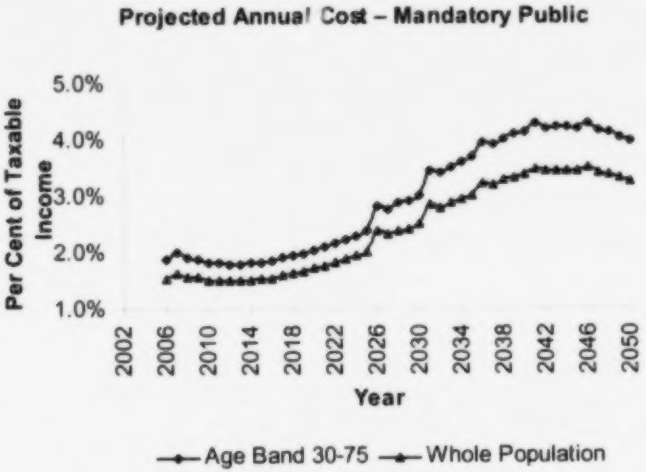
Insofar as premiums are income based, it is assumed that they are collected through taxes.

Cost Projections

Given little change to operations and the underlying cost structure, this insurance model assumes no impact on:

- Utilization rates;
- The split between residents using public and private facilities; and
- Inter-provincial migration patterns.

Consequently, there is no material impact on the cost projections with the mandatory public health insurance model.



Pre-Funding

Early collection of premiums that exceed costs will create a reserve to fund future continuing care costs. The investment income for the reserve helps reduce the long-term burden of continuing care. As discussed previously, there is limited opportunity in continuing care to materially reduce costs beyond what is currently planned (with the possible exception of some capital investment to increase productivity). To the extent that this is true, pre-funding is the only viable mechanism to reduce growth in continuing care and limit the peak costs in terms of taxable income or provincial revenue.

The level per cent of taxable income basis for expressing the funding charge is a logical basis to use, because taxable income is a readily recognized index that ensures a reasonable match between required funding and ability to pay. It does however have one deficiency – a percentage is not necessarily easy to interpret in dollar terms. Thus Alberta Health and Wellness also requested that the flat dollar funding contribution per capita that would pre-fund all projected costs to 2050 be determined. This flat dollar charge gives a useful estimate of the average impact of funding on all Albertans, ignoring differences in income. As such, it is essentially an average across all income levels and is provided as a rough measure rather than a recommended approach.

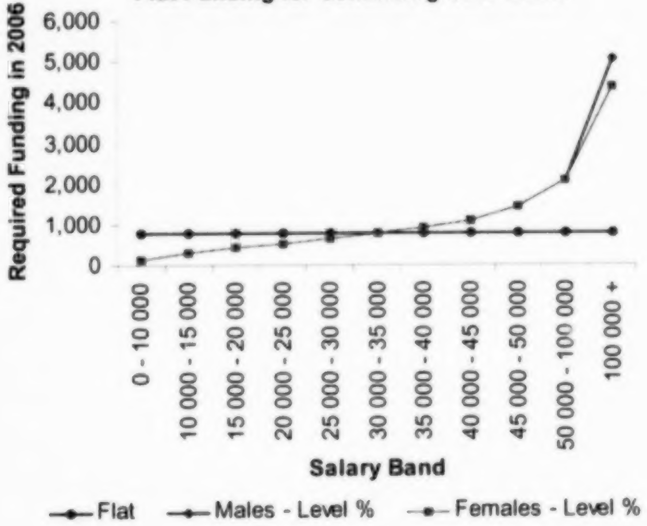
This flat dollar amount is $779 per capita. In determining this amount:

- The flat amount was indexed at 4% per year; and
- Albertans aged less than 16 were excluded from the calculation.

This compares with the level percentage of taxable income specified later in this section (2.4%).

The following graph compares the flat charge with the level per cent charge, using 2006 taxable income, separately for males and females.

Level Per Cent Taxable Income Funding vs. Flat Funding for Continuing Care Costs



Where the entire population makes continuing care insurance premium payments, the pre-funding rate would be 2.4% of personal income. This is lower than the peak premium payable of 3.4% in 2040 that would otherwise occur without pre-funding.

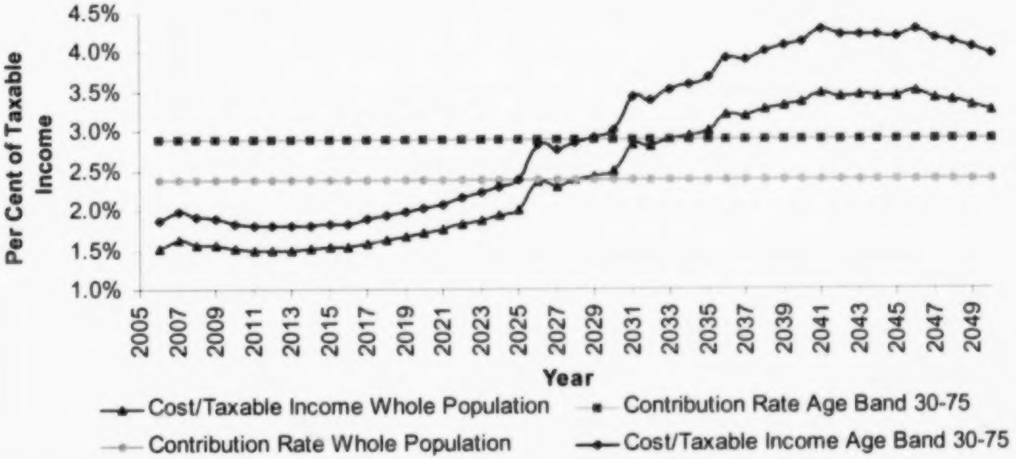
Should only the population between the ages of 30 and 75 make contributions, a level premium rate of 2.9% would offset the increase of 1.8% to 4.2% during the 2010 to 2040 period.

In the event that the level premium rates are not viable, the reserve could be funded from a combination of sources. In addition to individuals, employers could be required to make matching contributions (although this would raise their effective tax rate). Alternatively, the Government of Alberta could contribute to the reserve through general revenue or by creation of an endowment from natural resource revenue.

Finally, pre-funding could be done on a partial basis, by selecting a rate between the level rate and the current cost. This would mitigate the impact of cost increases, while reducing the effect of a sudden increase in collected pre-funding premiums (or taxes). The specific level of pre-funding critically influences the magnitude of these effects.

Level funding improves sustainability of the plan but the impact is less pronounced than in other benefit groupings with faster rising cost by age.

Projected Annual Cost – Level Funding – Mandatory Public



Sustainability

Public mandatory insurance has no underlying impact on costs, and can contribute to sustainability through pre-funding.

Opportunity for Choice

This model does not impact the current level of choice for continuing care, which currently includes a mix of public and private (non-profit and for profit) providers.

Note that accommodation fees are excluded from this model, and would need to be purchased by those receiving care, as they are today.

Opportunity to Link to Behaviour

The mandatory public scenario offers little scope to directly link premiums to responsible lifestyle decisions.

Conclusions

- With little disruption to the current continuing care provider network, this type of plan would be relatively straightforward to introduce.
- Its primary benefit is to enhance sustainability by providing a level funding contribution percentage.

Mandatory Public Health Insurance with Private Supplemental Coverage

This model assumes that there is a core public health insurance plan similar to the mandatory public health insurance model. However, private health insurance is available for those that would like to have coverage for additional or higher quality benefits, such as enhanced levels of continuing care.

Private Funding Pool
Public Common Funding Pool
Private Providers
Public Providers

From page 2-14

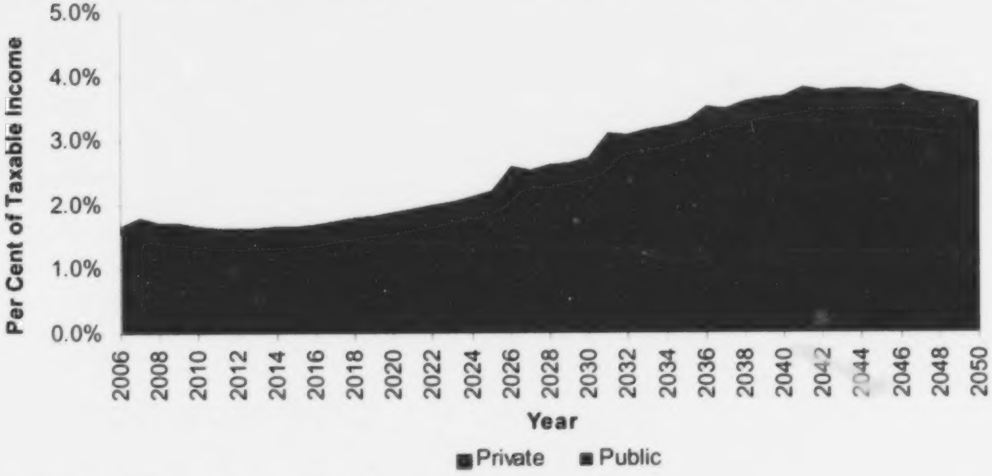
Although supplemental private health insurance plans are currently available, sales are minimal. Increased plan use may require tax or other financial incentives to increase public demand, or offset some portion of the risk that insurers pass on to consumers, by limiting the total monthly payouts and de-indexing from inflation. Health savings accounts would also complement, or possibly replace this type of insurance, with tax advantaged savings available to purchase continuing care services, beyond those provided by the core mandatory public health insurance plan.

Cost Projections

The cost projection for mandatory public health insurance is not expected to increase as underlying cost dynamics remain unchanged. There will be additional costs, however, to the extent that private services are purchased to upgrade the level of continuing care. These will be largely determined by supply and demand. Purchasing private services has been conservatively estimated to increase by 10% based on an average of experience in other countries.[21]

The conceptual model has little impact on the pattern of projected future claims.

Projected Annual Cost – Mandatory Public with Private Supplemental

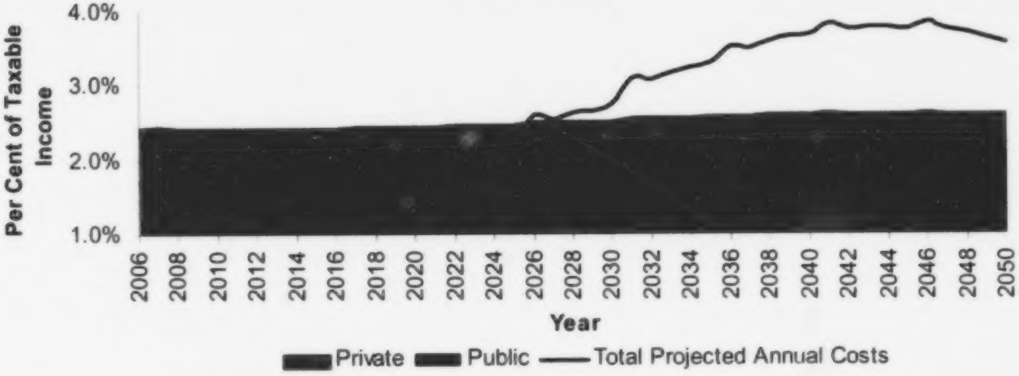


Note: Public contribution is assumed to be paid by the entire population.

Sustainability

The public mandatory health insurance element of this model can use pre-funding to enhance sustainability. To the extent that additional private coverage is optional and not medically necessary, the open market forces that determine total expenditure are not necessarily material to the sustainability question.

Projected Annual Cost – Mandatory Public with Private Supplemental – Level Funding



Opportunity for Choice

This model marginally increases the level of choice for those able to afford it. Given the relatively low uptake in insurance sales today for such coverage, it is unclear whether the level of choice will materially increase without some government incentives.

Opportunity to Link to Behaviour

The mandatory public component in this model offers little scope to directly link premiums to responsible lifestyle decisions.

Similarly, the supplemental private health insurance component is unlikely to have a material effect on behaviour.[22]

Conclusions

- In comparison to public mandatory health insurance, this conceptual model provides marginally increased choice for continuing care insurance coverage by providing private supplements for a marginally higher total cost (with no change in public expenditure).

Mandatory Private Health Insurance with Public Premium Pooling

From page 2-18

With a public body collecting mandatory premiums and then paying individual premiums to insurers based on the risk they carry, this conceptual model blends many of the attributes of private and public health insurance. As noted previously, the precise design of the policies will have a significant impact on actual pricing and benefits offered to the population.

Cost Projections

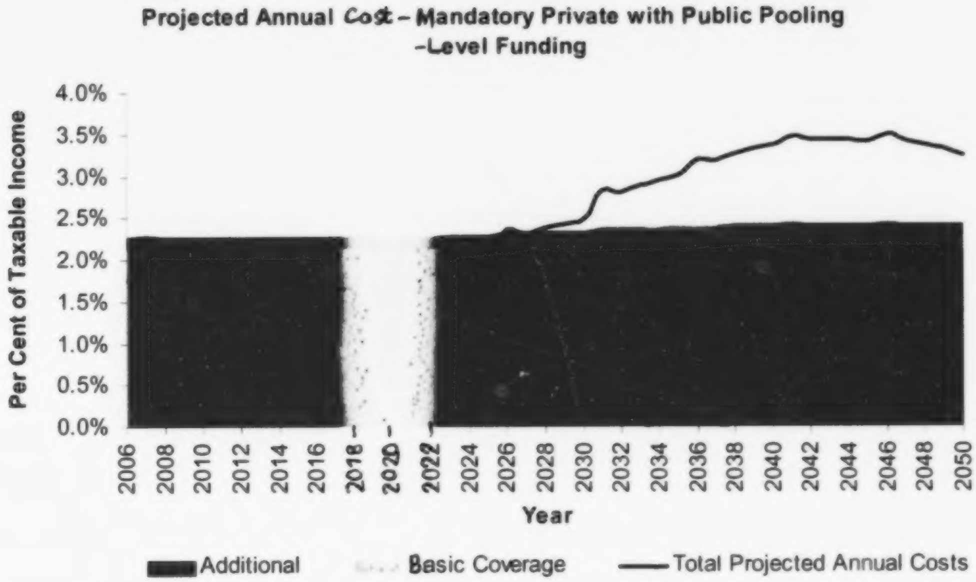
Introducing private insurers changes the cost projection dynamics. The major effects include:

- Additional expenses for marketing, the cost of capital, and the need for a return on investment; and;
- Possible productivity gains linked to increased use of capital and improved operational processes.

For any supplemental insurance beyond the core mandatory health insurance policy, cost dynamics will remain the same as the mandatory public health insurance with supplemental private coverage.

An average increase in productivity of 1% per year during the first 15 years is assumed. This rate closes much of the productivity gap between health care sector and the general economy by 2020, but is based on general statistical trends. Validation that productivity improvements are practical through a review of potential capital use and operational improvements is recommended prior to any final decision on funding.

Although mid-term costs are higher (until 2015), this model results in a slightly lower level premium as a percentage of taxable income (2.1% with mandatory private health insurance with public premium pooling versus 2.4% with public mandatory health insurance). This reflects the long term accumulation of capital to improve productivity and the ongoing operational changes associated with this modelling approach.



Sustainability

This model is marginally more sustainable than the others, as it has lower peak and level premiums, but is critically dependent on private insurers being the catalyst for increased productivity and lower costs. There is a risk that this will not occur, and sustainability would be compromised.

To the extent that additional private coverage is optional and not medically necessary, the open market forces that determine total expenditure are not necessarily material to the sustainability question.

Opportunity for Choice

This model increases the level of choice to the extent that insurers are able to offer insurance coverage for continuing care services beyond the minimum coverage required. There is limited international experience for this approach for funding continuing care, so this hypothesis is untested for these types of health services.

Opportunity to Link to Behaviour

The mandatory private health insurance component offers little scope to directly link premiums to responsible lifestyle decisions as the premiums are pooled.

The supplemental coverage element of the model means it is unlikely that there will be insurance mechanisms to encourage healthy lifestyles for continuing care.

Implementation

To achieve its potential, this model requires private delivery of services. So it would involve selling or leasing publicly-owned long-term care facilities to the private sector. Prior discussions would be required with the insurance industry to ensure that a sufficient number of insurers would enter this market.

Conclusions

- In comparison to the public mandatory health insurance plan, this conceptual model provides the potential for increased choice and a marginal reduction in the base cost of continuing care. However, there is a risk that the productivity gains anticipated by privatization are not realized, and that the cost does not decrease, but increases.
- To the extent that private providers of continuing care (in addition to the current private accommodation) can be introduced successfully into the continuing care system, the impact of cost reduction from introducing insurance would be lessened.

Mandatory Private Health Insurance

The long term and high level of inflation risk made this approach untenable insofar as private insurers are unlikely to offer coverage that is affordable to the Alberta population.

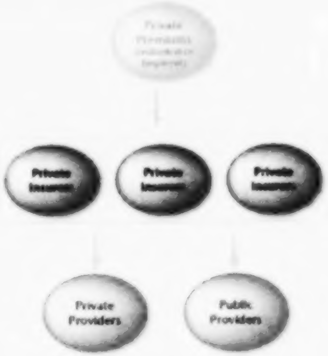
Private Providers
Public Providers

From page 2-21

Private coverage would require risk based premiums and the related underwriting expenses. Some people would not qualify for coverage due to health conditions. Mechanisms exist to pool such risks but this model does not offer any advantage compared to the mandatory private health insurance with public premium pooling model.

Optional Private Health Insurance

This insurance model was not assessed in detail. No viable implementation approach was identified that could meet the fundamental objectives of Alberta Health and Wellness. This approach would leave large portions of the population requiring continuing care without insurance coverage, which is an unacceptable outcome.


Private
Private Insurance
Private Insurance
Private Insurance
Private Providers
Public Providers

From page 2-22

Continuing Care Appendix

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

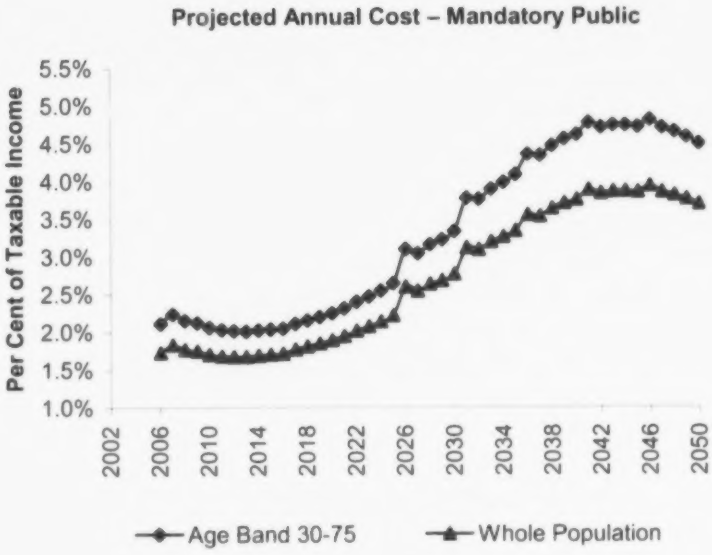
This appendix complements the Continuing Care section in the *Health Benefit Design Options* for Alberta Health & Wellness Report, March 29, 2006. It models the potential impact on costs and insurance premiums should the fee for a semi-private room in a continuing care facility be included as a benefit under the insurance models. For the purpose of this appendix, this additional cost will be referred to as "Accommodation Fees".

With the exception of assumptions and comments relating to Accommodation Fees, assumptions and comments found in the Continuing Care section remain accurate. This appendix focuses only on elements directly related to Accommodation Fees.

Building on the analysis found in the Continuing Care section of the main report, we explored the cost impact of adding the Accommodation Fees – assumed to be $42 per day per client in 2006 – to various conceptual insurance models. The incremental $42 unit cost reflects the current cost of a semi-private room, and is assumed to increase annually based on the inflation rate used in the Continuing Care section. Private room clients would pay an additional $6 above the $42 Accommodation Fee.

Mandatory Public Health Insurance

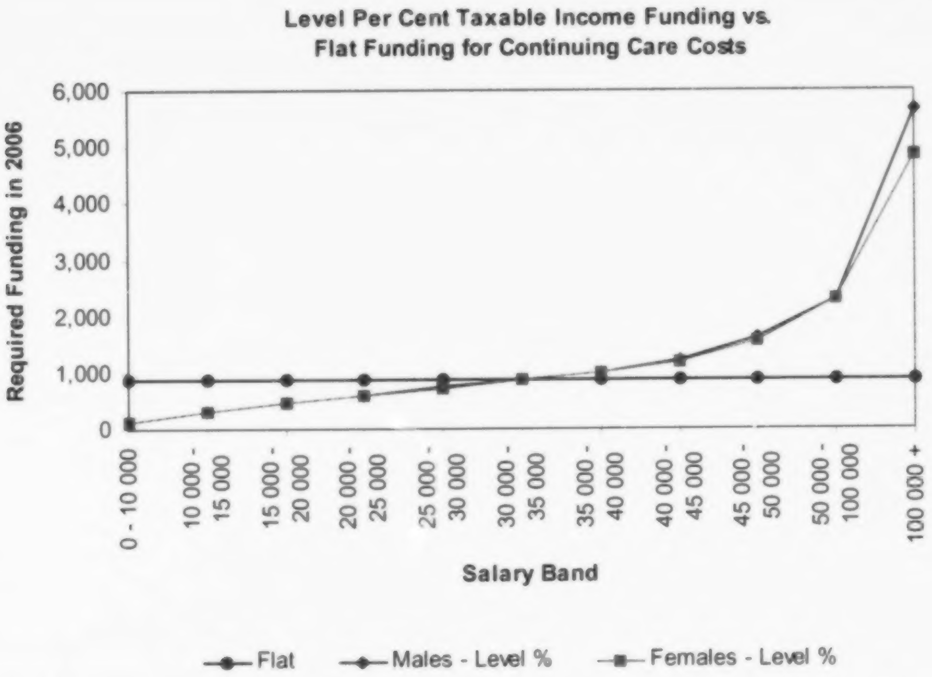
Cost Projections



Pre-funding

The flat dollar amount that would pre-fund all projected costs to 2050 is $870 per capita (this compares to $779 per capita without Accommodation Fees). Albertans aged less than 16 were excluded from these calculations.

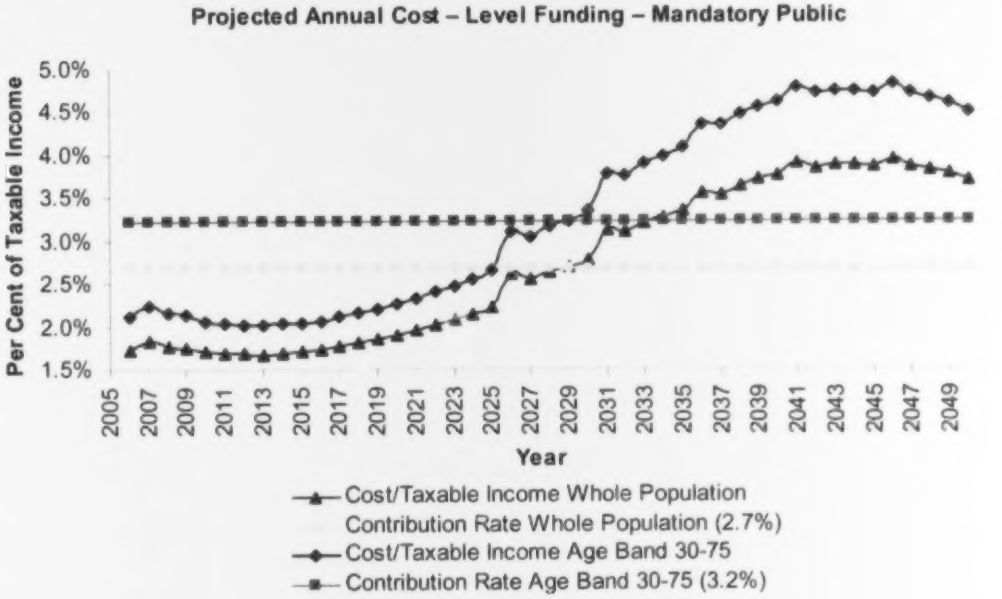
The corresponding level percentage of taxable income is 2.7% (compared to 2.4% without Accommodation Fees).



This graph compares the flat funding dollar amount with the level per cent charge using 2006 taxable income for males and females.

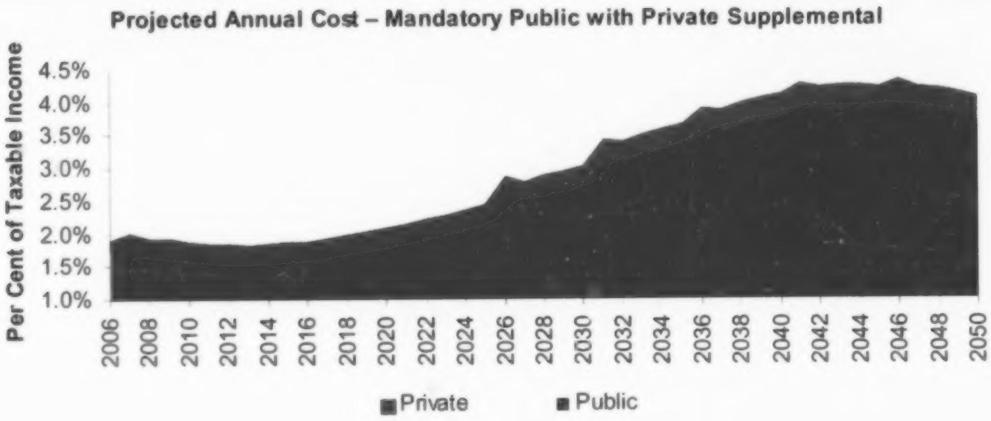
The term flat funding refers to an amount that is, during a given year, constant across all levels of taxable income. However, this flat amount is assumed to increase at 4% per annum.

Should only the population between the ages of 30 and 75 make contributions, a 3.2% level premium rate would be required to fund continuing care costs (compared to 2.9% without Accommodation Fees).



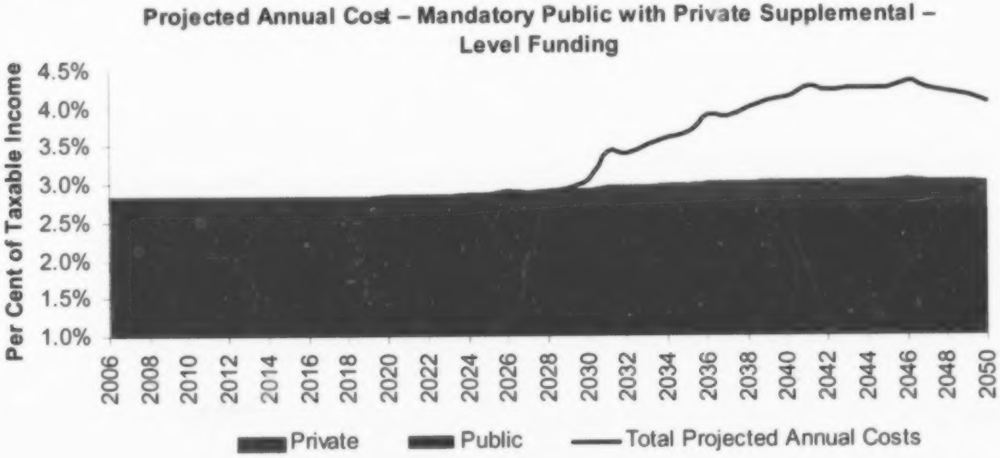
Mandatory Public Health Insurance with Private Supplemental Coverage

Cost Projections



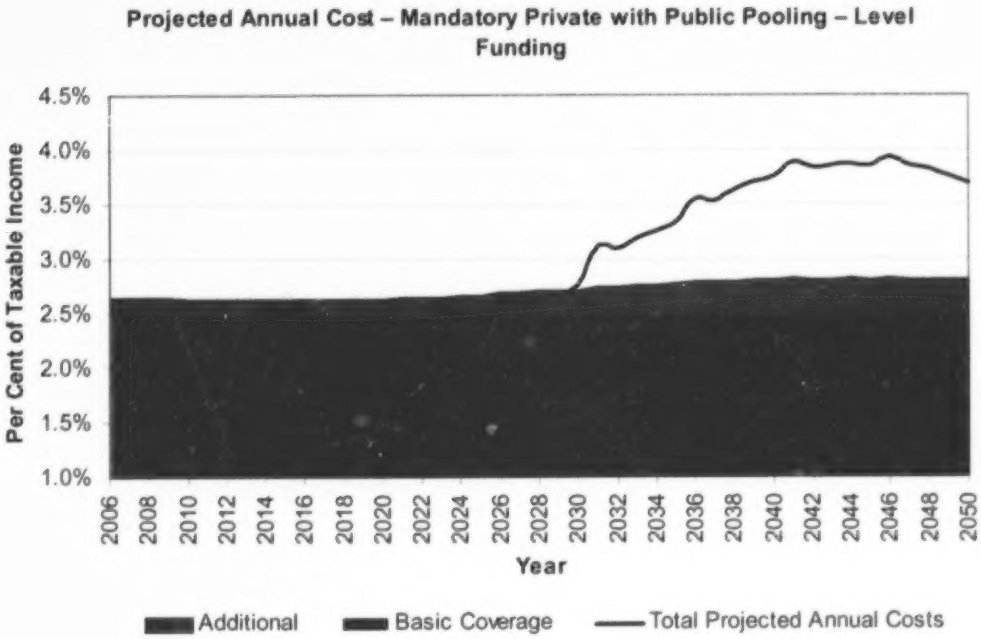
Note: Public contribution assumes the entire population pays the annual premium.

Level funding = 2.7%



Mandatory Private Health Insurance with Public Premium Pooling

Level funding = 2.5%



Implications of Including Accommodation Fees

Although approximately 60% of clients currently have a private room, we assumed that only the cost of semi-private room would be covered by the insurance program. Note that having the insurance program cover the cost of a private room would increase demand for private rooms but this demand could obviously not be met by existing facilities.

Given the almost universal receipt of Old Age Pension by Albertans aged 65 and over, having the insurance program cover 100% of Accommodation Fees seems to leave clients with a significant amount of "pocket money".

Since the $42 would be payable irrespective of whether clients elect to stay in publicly or privately owned facilities, this benefit would not change the expected mix of private / public clients.

The semi-private benefit would create a slight incentive for clients to use facility-based care, rather than aging in place. However, since eligibility criteria is based on medical conditions, no material increase in usage is expected (nor was such an increase included in the model).

Non-Emergency Health

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

At present, Alberta Health and Wellness does not offer non-emergency services as a separate category of services. Instead, both emergency and non-emergency services are offered without any differentiation. As a result, it was necessary to adopt a protocol to identify those services that would be considered non-emergency for purposes of the analysis.

It was decided that the triage score assigned upon registration at the emergency room should be the basis for defining services as emergency or non-emergency. These scores are based on the Canadian Emergency Department Triage and Acuity Scale, a nationally recognized scale used in all provinces for the purpose of ensuring that the most urgent cases presenting themselves to emergency are treated first. The scale consists of the following five levels:

- *Level I – Resuscitation* – Conditions that are threats to life or limb (or imminent risk of deterioration) requiring immediate aggressive interventions.
- *Level II – Emergent* – Conditions that are a potential threat to life, limb or function, requiring rapid medical intervention or delegated acts.
- *Level III – Urgent* – Conditions that could potentially progress to a serious problem requiring emergency intervention. May be associated with significant discomfort or affecting ability to function at work or activities of daily living.
- *Level IV – Less Urgent (semi-urgent)* – Conditions related to patient age, distress or potential for deterioration or complications; would benefit from intervention or reassurance within one to two hours.
- *Level V – Non Urgent* – Conditions that may be acute but non-urgent as well as conditions which may be a part of a chronic problem with or without evidence of deterioration. The investigation or interventions for some of these illnesses or injuries could be delayed or even referred to other areas of the hospital or health care system.

After evaluation of the five levels defined above, it was decided for purposes of this analysis that triage scores of one or two would be regarded as emergency and therefore would fall beyond the scope of this analysis. The remaining triage scores would then be classified as non-emergency and fall within scope. This provides analysis of the maximum impact of insurance, recognizing that a more limited group of services could subsequently be assessed.

In summary then, non-emergency health consists of the following types of services:

- Emergency room visits with a triage score of three or more. Visits with lower triage scores are excluded from the definition of "non-emergency".

- Hospitalizations resulting from the emergency room visits referred to above.
- Other hospitalizations, that is, hospitalizations that do not result from emergency room treatment.
- Treatment rendered at hospital ambulatory care centres.
- Treatment provided at a general practitioner's or a specialist's office.
- Physician's services provided at a hospital ambulatory centre following emergency room treatment.
- Physician's services rendered in connection with in-patient care or in a long-term care facility.
- Physicians' fees in connection with diagnostic or therapeutic services.
- Community laboratory and other diagnostic fees.

At present non-emergency health services are all provided publicly through Alberta Health and Wellness and the regional health authorities. Recent growth rates in costs for these services have been quite high in Alberta, both in absolute terms and in comparison to other provinces. In the 2004/05 fiscal year, more than $4.0 billion was spent in providing the above services to Albertans.[23] Funding for publicly provided services is currently available from a variety of sources, on a pay-as-you-go basis:

- Federal government transfers under the *Canada Health Act*.
- Direct contributions from Albertans, which are referred to as "premiums" although they are not developed according to insurance principles.
- General government revenues.

Neither the current plan design nor the current funding arrangements provide any incentive or mechanism to reduce demands on the system.

Summary of Findings

Baseline Analysis

The baseline analysis projects costs through the year 2050 assuming that no changes are made in plan design, funding or the delivery system. Thus recent patterns of growth are projected forward unadjusted through 2050.

Costs

Claim projection factors

a. Claim projection factors were developed and applied to per capita claim rates developed from data provided by Alberta Health and Wellness. The development of the factors was based on data published by The Canadian Institute for Health Information (CIHI). The analysis uses per capita costs published in a report entitled "Provincial and Territorial Government Health Expenditures By

Age Group, Sex and Major Category: Recent and Future Growth Rates".[24]

b. The figures in the report are in 1997 dollars, using the Implicit Price Index (IPI) as a deflator.

c. The report displays growth rates for all ages and both genders combined, both by province and for the whole of Canada. It also shows costs by age and sex for the whole of Canada.

d. To develop costs by age and sex for Alberta, the costs by age group and sex in (c) above were increased by the appropriate IPI and adjusted by the difference between Alberta costs and those for the whole of Canada. Thus it is assumed that the following two elements do not vary by age or sex:

- IPI; and
- Alberta-specific differences.

e. Benefit groupings shown were:

- Hospitals;
- Other institutions;
- Physicians; and
- Other professionals.

f. The resulting projection factors by age and sex are shown in the table below.

g. The projections were based on (e)(i) above for each of hospital accommodation, emergency room charges and ambulatory charges and on (e)(iii) above for all other elements of non-emergency medical care, (that is, for physicians' costs and for laboratory and other diagnostic charges).

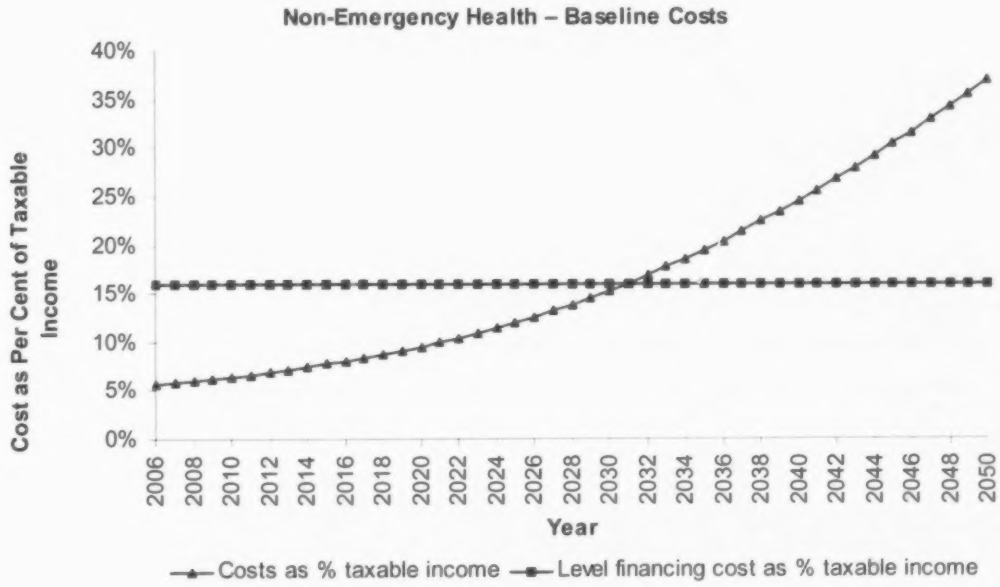
Per Capita Claims Projection Factors

Age Group	Males – Hospital	Females – Hospital	Males – Other Expenses	Females – Other Expenses
Less than 1	7.8%	8.1%	7.5%	7.2%
1-4	6.4%	6.9%	6.9%	5.7%
5-14	5.3%	5.6%	6.3%	6.3%
15-44	6.5%	6.3%	7.6%	7.1%
45-64	6.8%	6.2%	8.5%	7.7%
65-74	6.7%	7.0%	8.7%	8.6%
75-84	7.1%	7.4%	9.0%	9.0%
85 or more	7.9%	7.9%	9.4%	8.8%

Total

Total projected costs from the model were $5.1 billion in 2006. By the end of the projection period, cost inflation and population growth had combined to increase this amount to $245.8 billion. As a per cent of projected taxable income, costs grew from 5.5% in 2006 to 37% in 2050.

The cumulative growth rate leads to extremely high costs that would be unaffordable for Alberta by 2050.



If the provincial government chose to immediately implement a "pre-funding" approach to provide for anticipated costs through the year 2050, the equivalent level per cent of taxable income required to cover baseline costs is 15.95%. For some years thereafter, this financing cost would exceed the current annual costs, thereby generating surplus. The surplus would be invested in a dedicated trust fund to ensure that it was not spent for other purposes; it would be required to pay later year costs, which would be expected to exceed the available financing. The expectation of investment credits reduces the degree of financing required by Albertans.

The modelling assumptions, combined with the assumption that taxable incomes will grow by 4% per year for those aged less than 65 and by 2% per year for those age 65 or more, lead to a "cross-over point" in 2031, where costs exceed available current year financing.

By Age

Costs per capita displayed a fairly consistent pattern. While costs for the age category zero-to-four were quite high, they declined for the next two or three age categories and began to rise thereafter, peaking at ages 90 and above. This led to a characteristic U-shaped graph of costs by age category.

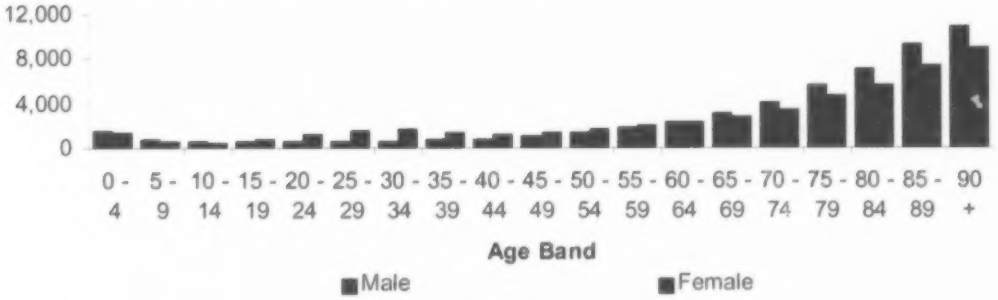
Although per capita costs rose steeply by age, the distribution of covered population by age is such that older ages do not represent the bulk of the costs. Nevertheless, aging of the population is an additional cost driver as more of the population lives longer.

By Gender

Outside of the child-bearing years, per capita costs for females tended to be lower than for males. This pattern is consistent with other studies and was therefore not unexpected.

In 2006, nearly one-third of total costs arise from those aged 65 or more. Noting the rapid increase in per capita costs by age and the expectation of an aging population, it is clear pre-funding is potentially very helpful in providing for the expected costs of public insurance.

Non-Emergency Health – 2006 Per Capita Costs By Age and Gender



Total Cost by Age and Gender – 2006

Overall Age Band	Male	Female	Total
0 - 4	179,761,134	150,071,597	329,832,731
5 - 9	87,989,090	64,340,704	152,329,794
10 - 14	69,026,307	53,637,407	122,663,713
15 - 19	78,105,862	94,490,725	172,596,587
20 - 24	77,062,529	151,660,786	228,723,316
25 - 29	74,725,401	195,976,880	270,702,281
30 - 34	83,793,793	207,254,268	291,048,061
35 - 39	92,649,907	176,449,323	269,099,231
40 - 44	114,348,066	175,290,583	289,638,649
45 - 49	150,107,982	196,309,777	346,417,758
50 - 54	169,828,683	199,341,922	369,170,605
55 - 59	178,239,906	187,701,197	365,941,104
60 - 64	165,462,002	160,503,024	325,965,026
65 - 69	162,417,836	150,660,290	313,078,126
70 - 74	171,953,670	157,258,476	329,212,146
75 - 79	177,300,358	179,870,940	357,171,298
80 - 84	135,541,067	164,889,876	300,430,942
85 - 89	80,862,446	126,168,066	207,030,512
90 +	33,812,710	74,487,288	108,299,998
Total	**2,282,988,750**	**2,866,363,127**	**5,149,351,877**

Mandatory Public Health Insurance

The baseline analysis summarized above is essentially an extrapolation, using current per capita costs and recent inflationary trends projected far into the future. This means that it produces unreasonable results as the end of the projection period is approached.

Government of Alberta Funding
Government of Canada Funding
Common Funding Pool
Private Providers
Public Providers

From page 2-12

For example, by the year 2050, projected costs for this benefit grouping reach 37% of projected taxable income. Such disproportionate expense on one segment of health care alone is certainly unsustainable; therefore, the baseline scenario should not be used as the basis for any detailed analysis.

In the mandatory public health insurance scenario, the government is expected to provide a single, centrally administered source of insurance coverage. The required financing would be determined by:

- Using appropriate insurance principles to project costs; and
- Assessing required premium rates expected to be sufficient to meet costs over periods to be defined by reference to desired public policy outcomes.

For illustrative purposes, the projected financing has been expressed as a level per cent of taxable income sufficient to meet projected costs through the year 2050. By expressing it compared to taxable income, it is easy to assess the true affordability of the model.

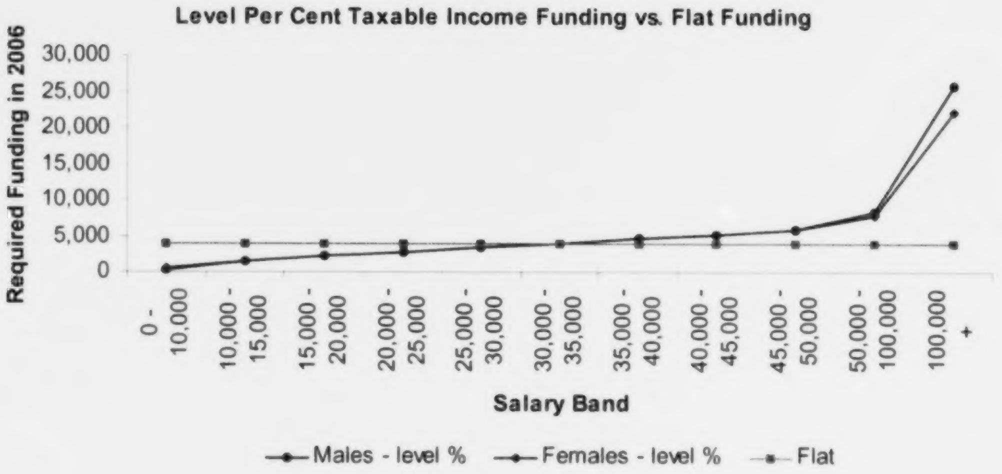
The level per cent of taxable income basis for expressing the funding charge is a logical basis to use because taxable income is a readily recognized index that ensures a reasonable match between required funding and ability to pay. It does, however, have one deficiency – a percentage is not necessarily easy to interpret in dollar terms. Thus, Alberta Health and Wellness also requested that the flat dollar funding contribution per capita be determined that would pre-fund all projected costs to 2050. This flat dollar charge gives a useful estimate of the average impact of funding on all Albertans, ignoring differences in income. As such, it is essentially an average across all income levels and is provided as a rough measure, rather than a recommended approach.

This flat dollar amount is $3,965 per capita. In determining the flat amount:

- The flat amount was indexed at 4% per year; and
- Albertans aged less than 16 were excluded from the calculation.

This compares with the level percentage of taxable income specified later in this section (12.16%).

The following graph compares the flat charge with the level per cent charge, using 2006 taxable income, separately for males and females.



To calculate the required level financing percentage of taxable income, no taxable income was excluded. That is, neither minimum nor maximum were implemented. Adoption of such minimums and maximums, although it would be clearly desirable in social terms, would increase the required financing percentage.

In modelling mandatory public health insurance, the growth factor applied to per capita claim rates after the year 2015 was reduced to 6% for all ages except those age/sex cells for which it was already less than 6%. In this context it is important to bear in mind the fact that Alberta has experienced higher than average growth in its per capita costs for hospitalization and physician costs compared to other provinces, (2.1% more for hospitalizations and 3% more for physicians' costs).[25] It would be prudent to set an affordable rate of future growth in per capita costs and identify changes in practice that could potentially assist in achieving this target. Relevant considerations include:

- Community-based care is less expensive than institution-based care. (Note that Alberta Health and Wellness has already implemented changes in its long-term care delivery strategy to encourage "aging in place", fundamentally a strategy for promoting community-based care, when it is appropriate.)
- At present, there is little emphasis on preventive measures; instead the system is oriented to treatment of acute conditions.
- Currently, outcomes measurement and productivity measurement are rarely used as a tool for effective delivery of health care services.

There arises a natural question – what specific changes could be implemented that might reduce future growth in costs? Unlike prescription drug benefits, there has been relatively little effort expended either by governments or by private insurers in identifying such activities in connection with non-emergency health. Thus the following are presented as suggestions that may stimulate discussion and provide building blocks to improve processes rather than final recommendations:

- Use outcomes measurement to identify the providers and processes (if relevant) that deliver the most favourable health outcomes. Use this information as deemed appropriate, for example:
  - Reduce the province's exposure to processes or providers that deliver sub-optimal results;
  - Change compensation structure for providers to reduce the economic incentive to conduct multiple tests and see many patients; or
  - Use outcomes measurement as the basis for focused training meant to ensure that better processes are widely adopted.
- Be alert to opportunities to meet demand growth through investment of capital instead of through adding more people to the delivery system.
- Develop plan designs that emphasize preventive care. Continue to emphasize the value of healthy lifestyles, both as a quality of life issue and as a means to reduce demands on the medical system.
- Identify initiatives taken in connection with other benefit groups that also have the potential to reduce non-emergency costs. For example, it has been estimated that 17% of all drug-related hospitalizations arise from improper prescribing. By adopting tools and promoting education aimed at reducing improper prescriptions, Alberta Health and Wellness would improve not only prescription

drug experience, but also hospitalization experience.

- Noting that Alberta's rates of cost growth have exceeded those of other provinces during the last ten years, study processes and history of other provinces to identify practices that might reduce Alberta's growth to similar levels to those found in other provinces.

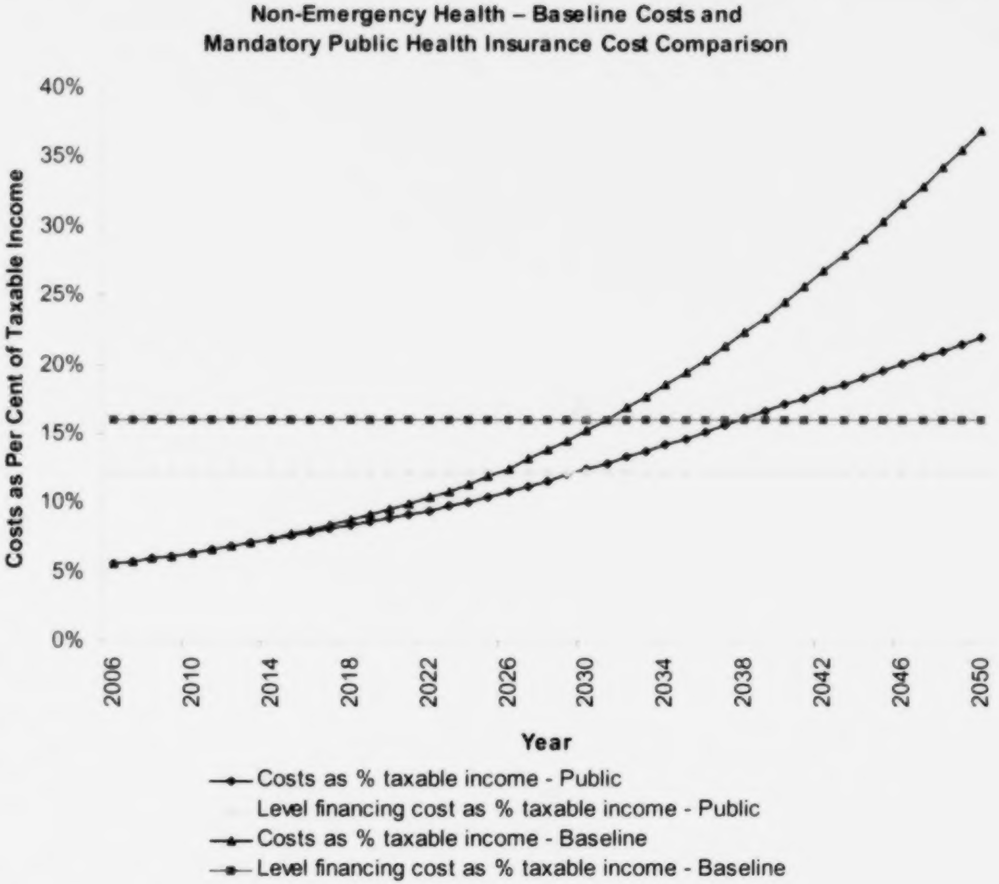
The successful search for initiatives that directly affect growth in costs would offer the potential to achieve a future growth rate of 6% or perhaps even lower.

The ability to achieve a 6% trend would have a significant impact on costs:

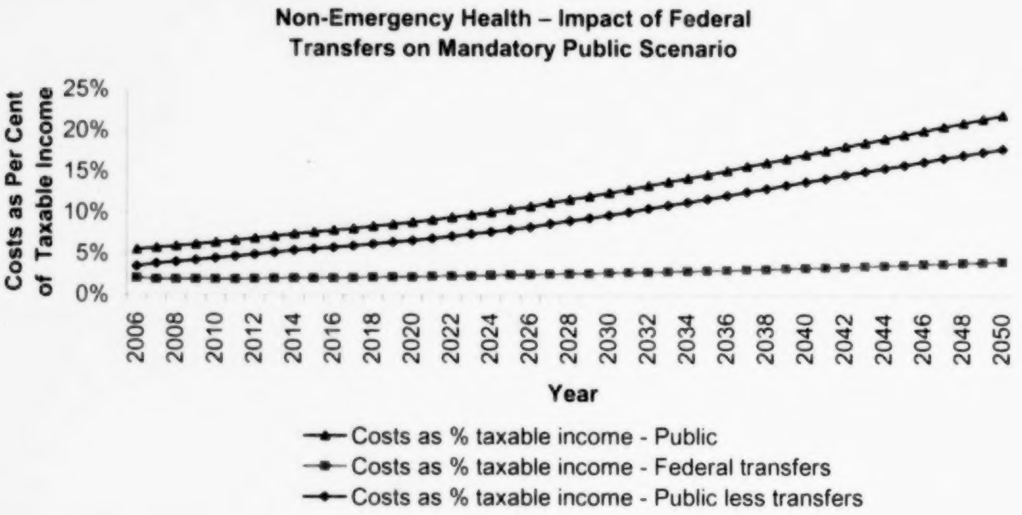
- Costs would rise to $146 billion by 2050, instead of the $245 billion under the baseline scenario. The final projected costs are 22% of projected taxable income of the entire population in 2050.
- The equivalent level funding per cent of taxable income is 12.16%, a reduction of nearly 25% from the baseline scenario.

Note though that the 6% target, though difficult to achieve, still represents a growth rate roughly double the CPI. Thus it would still impose significant stresses on the future provincial economy.

The impact of lower inflation can be seen in the reduction of the level funding percentage by nearly 25% compared to the baseline scenario. However, growth in actual costs is still significant over the projection period. Inability to limit inflation would have serious consequences.



Federal transfers are significant, but impact is projected to decline.



Key Cost Drivers

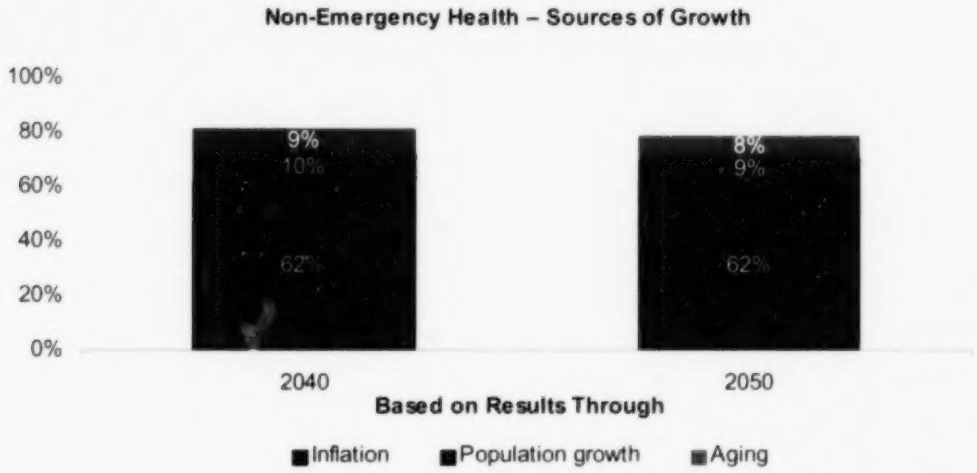
Key cost drivers tend to be the same for any benefit grouping and in any scenario. Essentially future costs are expected to grow because of the combined impact of the following factors:

- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations.

Since providers will expect, over a period of years, to see their incomes rise at a rate that exceeds consumer price inflation, provider expectations represent a minimum level for projections. Thus, the minimum expected increase is in excess of CPI. The other four factors listed above will normally tend to drive health costs higher yet, although net population growth also enhances the population's ability to fund health care costs.

An important element of cost in this scenario is the provincial government's ability to control costs by limiting available funding. The weakness in this strategy is that it fails to address issues like demand growth. As a result, any cost control initiative based in limiting funding would need to be coupled with appropriate measures to ensure that the population continues to be satisfied with the quality of the care that it receives.

The following graph displays the key sources of growth both through the year 2040 and over the entire projection period.


Non-Emergency Health – Sources of Growth

The graph above shows that over the entire projection period, cost inflation is the primary cost driver. Population growth and aging also contribute to increased costs, but to a lesser degree. Note as well that population growth leads to economic growth. This can potentially offset the resulting increase in medical costs.

Sustainability

This approach offers hope for sustainability if it is combined with pre-funding. In this scenario, it is important to adopt appropriate measures to limit costs without damaging quality. As a result, using waiting lists as a tool for cost reduction is not an option.

Opportunity for Choice

Under this arrangement, health care funding is provided through a centrally administered system. As is the case under the current system, there is freedom to select certain health care providers, but there is no choice of insurance provider available.

Opportunity to Link Behaviour

The mandatory public health insurance scenario offers little opportunity to link available health care to behaviour, unless the government wishes to consider brand new policy initiatives such as varying the coverage available by health status, e.g., obesity or smoking status, or contemplating the use of cost sharing or other user fees in reimbursing certain types of services. It would be prudent to assess any such initiatives in advance to understand their potential impact on federal transfers under the *Canada Health Act*.

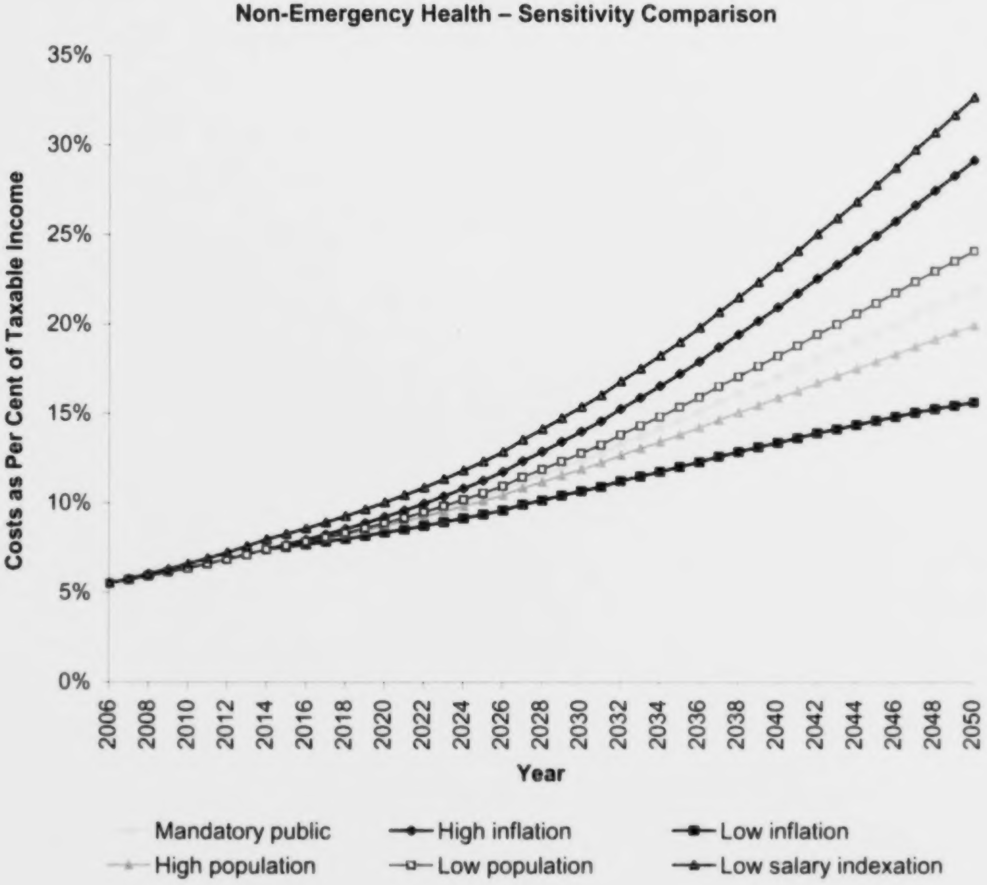
Sensitivity Testing

The following additional scenarios have been tested:

- Ultimate inflation rate 1% higher, at 7%;
- Ultimate inflation rate 1% lower, at 5%;
- High population scenario;
- Low population scenario; and
- Salary indexation of 1% less for under age 65 and 0.5% less for age 65 or more.

The first two scenarios test the possibility that utilization will vary from that assumed in the base mandatory public health insurance projections. The next two examine the capacity of the population to tolerate the expected level of increases under different assumptions as to net immigration and births. The final scenario tests the impact on available funding in the absence of strong economic growth. It will be seen that low economic growth imposes the greatest burden on the population, with costs projected to exceed 32% of taxable income by the year 2050, followed by high inflation, under which costs approach 30% of taxable income by the year 2050. The other scenarios are relatively benign in their impact on the province's ability to absorb the projected increases. In terms of level financing, low economic growth and high inflation each add from 2% to 2.5% to the required financing percentage; the others have a more modest impact or even a favourable impact.

The inability to maintain high economic growth or to limit cost inflation undermines sustainability.



Conclusions

- Net immigration into the province potentially increases funding capacity.
- Focus must be on effective, prompt service delivery if funding is used as a tool to limit cost growth, because demand is expected to increase.
- Economic growth and inflation have the largest single impact on costs, which suggests that research is needed into means of limiting growth in demand and maintaining or increasing the healthy growth rates that have characterized the provincial economy in recent years.
- Level funding is not a panacea – by the year 2050 the projected level funding surplus has reduced to zero, but costs continue to rise faster than the economy.

Mandatory Public Health Insurance with Private Supplemental Coverage

Preliminary testing was conducted of a model that sorted non-emergency health services into two segments – one to be publicly financed and the other to be privately financed. The second segment could either be optional or mandatory.

Private Funding Pool
Public Common Funding Pool
Private Providers
Public Providers

From page 2-14

Public Services

Public services included:

- Emergency room treatment with triage scores of 3 or more and all resulting hospitalizations;
- Physicians' services delivered in hospital, except ambulatory; and
- Diagnostic and therapeutic services, including community lab.

Private Services

Private services included:

- Ambulatory services; and
- Physicians' services delivered in the ambulatory centre or outside of a hospital setting.

Key Cost Drivers

The following factors drive cost:

- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations.

Sustainability

Since public acceptance of a design that potentially varies funding sources between public and private for different elements of a single course of treatment is unlikely, this model is not believed to be sustainable.

Consideration was also given to a model in which specified treatments would be removed from the public domain and offered privately. One possible example was hip replacement, in which potential recipients who had previously bought the coverage would be allowed to bypass waiting lists or access a more extensive type of replacement. However, this model is also expected to be unsustainable, as the potential private market would be much too small to interest a prospective insurer in the market potential or to convince the insurer that there would be a large enough spread of risk to enable profitable insurance pricing.

Opportunity for Choice

In this model, there is very little opportunity for choice for publicly financed benefits, with significant opportunity for choice among privately financed benefits if the private insurance market believes there is a viable market.

Opportunity to Link Behaviour

This model offers only limited opportunity to link to behaviour.

Sensitivity Testing

No sensitivity testing was conducted.

Conclusions

This model was judged unsustainable for non-emergency health services and as a result no additional testing was conducted.

Mandatory Private Health Insurance with Public Premium Pooling

This insurance model is based on the following:

From page 2-18

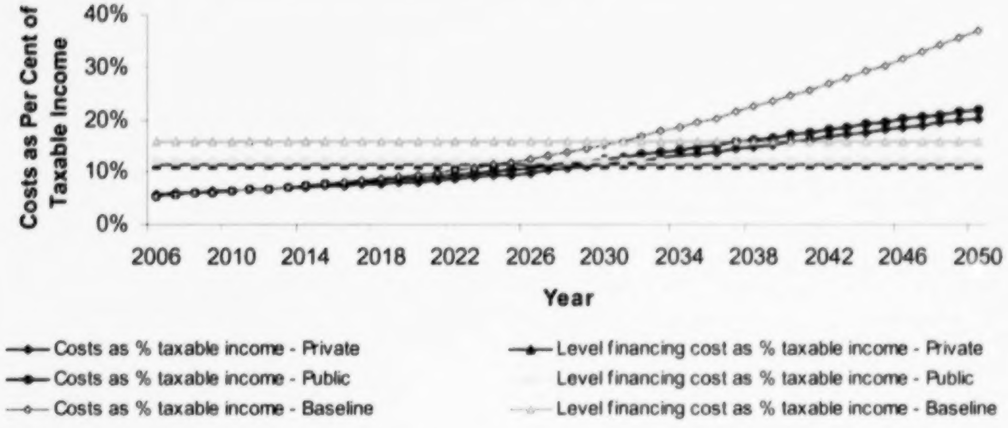
- The provincial government would provide funding, either in a similar way to the province's current system, or through a pre-funding model, where the population would pay into a common pool of public funding at a rate expected to fund projected costs over a specified future period.
- The required insurance premiums for each private insurer would then be determined and distributed by the government based on the risk characteristics of each carrier's insured population and the mandatory coverage level.
- In support of this system, individuals would need to select coverage from private carriers.
- The types of plans offered would need to meet minimum standards of coverage defined and regulated by the government.

Under this arrangement, private carriers would not be allowed to revise their premium rates in an unregulated fashion. Instead, their pool of available premiums would be determined by the provincial government. Private carriers are then faced with delivering on their benefit commitments, providing for their own administrative expenses and achieving required profit margins within the constraints of available funding. To deal with these considerations, private carriers are expected to develop provider networks to negotiate compensation arrangements that fit within funding constraints. This would constitute a change in their business focus, one that they may not welcome.

Important modelling assumptions for this scenario include initial cost increases resulting both from administrative costs and from private profit margins, but compounding cost savings offset these increases in the future. This leads to first year projected costs of 104% of those of the public model. These costs would potentially fall to 92% of public model costs by the year 2020, at which level they were assumed to remain. With these assumptions, annual costs rise from $5.4 billion in 2006 to $135 billion in 2050. Expressed as a per cent of taxable income, the increase is still considerable – rising from 5.8% in 2006 to 20.2% in 2050. The equivalent level funding per cent is 11.3% of taxable income.

Productivity gains are central to financing affordability.

Non-Emergency Health – Mandatory Private Health Insurance Compared with Baseline and Mandatory Public Health Insurance



Key Cost Drivers

The following factors drive cost:

- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations, as negotiated with the private carriers.

Private carriers include a profit margin in their pricing, which is a factor that has no counterpart in public financing models. In addition, it may well be that moving from a single, centrally administered plan to one with de-centralized administration offered by multiple sources will tend to drive administrative costs up. There is potential to offset this if private carriers succeed in negotiating provider arrangements that offer permanent, compounding savings compared to other models. In summary, this model appears to offer the likelihood of higher initial costs with possible future savings.

Sustainability

If government can limit available funding and private carriers can successfully build profitable, efficient delivery networks that achieve productivity gains, this model has the potential to be sustainable.

Opportunity for Choice

Consumers would have freedom to choose the plan and the insurer that they wished, except to the extent that selection of insurers was made by an employer sponsor of a group insurance plan, so this model offers maximum scope for individual choice.

Opportunity to Link Behaviour

The opportunity to link to behaviour in this scenario is a function of the plan design mandated by the government.

Sensitivity Testing

The relative impact of changes in inflation, population and salary indexation would be very similar in this scenario to those modelled under the mandatory public health insurance scenario.

Conclusions

- It is suggested that Alberta Health and Wellness assess the impact of such an approach to non-emergency care delivery on federal transfers under the *Canada Health Act*.
- Extremely large accounting liabilities would be imposed upon private employers if all non-emergency benefits were privately offered and mandatory.
- There would very likely be an immediate increase in costs, with the possibility of future reductions.
- Given the different business model required of private insurers to operate under this scenario, significant time would need to be devoted to working with the private industry to prepare for it.
- The private industry might resist this model, on the grounds that it would impose a large potential profitability risk without allowing them the latitude to price in accordance with their expected risk (because of government control over available financing).
- The long-term success of this approach would be determined by the government's ability to constrain private funding and private carriers to build a profitable business under this model, while achieving productivity gains with their provider base.
- Government would need to exercise a significant degree of oversight to ensure that plans met regulatory minimums and met appropriate quality standards.

Supplemental Health

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

At present, supplemental health care is largely privately insured, although the Alberta health system offers limited coverage of certain supplemental health care services on a public basis. Private plans are essentially group insurance plans negotiated by employers or unions on behalf of their employees or members, although there is a small volume of individual policies. Since private carriers generally do not wish to accept the long-term risk of claims utilization and inflation, private plans are typically priced on an annual renewable term basis.

Public plans are currently funded on a pay-as-you-go basis under which costs are paid or incurred with little incentive to manage them.

The present system does not provide universal coverage for all Albertans. Specifically, there are individuals who do not qualify for the limited public coverage and are not covered for private benefits. These individuals would generally fall under the following groups:

- Self-employed and their dependents;
- Unemployed and their dependents; or
- Retired individuals without access to post-retirement insurance. (Some group plans offer post-retirement coverage, but recent changes in Canadian accounting requirements have created an incentive for employers to eliminate such offerings.)

Based on the extent of prescription drug coverage, it is likely that approximately 30% of Albertans of working age are not covered for supplemental health benefits.

Some of these individuals may have the means to buy individual coverage. However, individual coverage may not suffice. First, it generally requires the submission of evidence of insurability. Second, the scope of individual coverage may not match that of prevailing group insurance plans.

The specific benefits involved may be characterized as a typical group extended health care policy, without prescription drug coverage. As such, the benefit package modelled in this study consists of:

- Private duty nurses when ordered by a physician;
- Paramedical specialists (physiotherapists, chiropractors, acupuncturists, podiatrists, chiropodists, naturopaths, homeopaths);
- Psychologists;
- Speech therapists;
- Registered massage therapists;
- Ophthalmologists and optometrists;
- Osteopaths;
- Dental accident coverage within ninety (90) days of an accident;
- Vision care (lenses, frames and eye examinations);

- Hearing aids;
- Mobility aids, prosthetic equipment, diagnostic laboratory tests, x-ray procedures and other medical supplies, including hospital-type bed, wheelchair and other such medical and mobility devices when medically necessary;
- Orthotic devices prescribed by podiatrists, chiropractors, chiropodists, or orthopaedic surgeons; and
- Orthopaedic shoes, up to one pair every 12 months (three pairs if under 19 years of age) prescribed by an orthopaedic surgeon.

In the private health insurance industry, such coverage is typically sold subject to deductibles and co-payments. Based on a forecast prepared by The Canadian Institute for Health Information, it is estimated that the cost of such coverage to Albertans in 2004 exceeded $1.7 billion, including out-of-pocket expenses.[26] Recent renewal increases for coverage in the private health insurance industry exceed those applicable to non-emergency health. Many private carriers have moved to limit plan designs to contain this growth, thereby shifting costs to the claimant.

Summary of Findings

Baseline Analysis

As was the case with non-emergency health care, the baseline analysis assumes a continuation of the practices, plan designs and delivery mechanisms that have led to the current situation. Thus the baseline analysis fundamentally assumes continuation of private health insurance and no immediate success in reducing inflationary trends that drive cost increases.

Costs

Claims data compiled from a representative selection of private sector plans was used to generate per capita claims that varied by age and sex. The resulting claims rates were tested against Alberta's population and adjusted so that they produced total costs that were consistent with the 2004 forecast referred to above.

Claim Projection Factors

Claim projection factors were developed for each age-sex cell by analyzing utilization and inflation patterns within the same representative selection of private sector plans and ensuring that the aggregate impact was consistent with increases typically required by private insurers at renewal. This process led to inflation factors that vary by age, sex and benefit sub-group as listed in the following table. It is not reasonable to assume that such high increases will continue indefinitely. As a result, for the five years following the year 2010, the initial projection factors were graded down into factors that were identical to those utilized in the non-emergency health model. Even with this moderating assumption, compounding leads to significant increases over time.

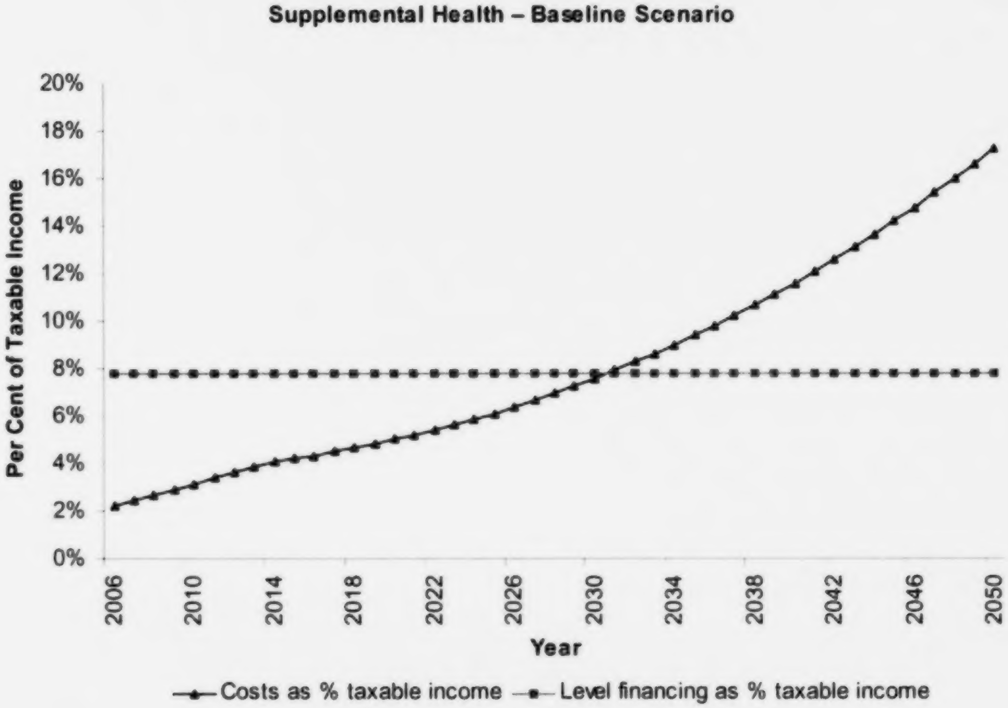
Claim Projection Factors

	HOSPITAL		VISION		PARAMEDICAL		HEARING AIDS		MISCELLANEOUS MEDICAL	
Age Band	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
0 - 4	8.75%	8.05%	5.62%	3.13%	20.50%	24.00%	16.88%	14.20%	17.50%	21.00%
5 - 9	8.75%	8.05%	5.62%	3.13%	20.50%	24.00%	16.88%	14.20%	17.50%	21.00%
10 - 14	7.70%	7.35%	5.62%	3.13%	20.50%	24.00%	16.88%	14.20%	15.40%	18.48%
15 - 19	7.70%	7.35%	5.62%	3.13%	20.50%	24.00%	15.19%	12.78%	15.40%	18.48%
20 - 24	5.95%	8.40%	4.95%	2.75%	20.50%	24.00%	15.19%	12.78%	15.40%	18.48%
25 - 29	5.95%	8.40%	4.95%	2.75%	20.50%	24.00%	14.35%	12.07%	12.60%	15.12%
30 - 34	5.95%	8.40%	4.05%	2.25%	13.94%	17.28%	14.35%	12.07%	12.60%	15.12%
35 - 39	5.95%	8.40%	4.05%	2.25%	13.94%	17.28%	14.35%	12.07%	12.60%	15.12%
40 - 44	5.95%	7.00%	4.05%	2.25%	13.94%	17.28%	14.35%	12.07%	12.60%	15.12%
45 - 49	5.95%	7.00%	4.05%	2.25%	13.94%	17.28%	14.35%	12.07%	12.60%	15.12%
50 - 54	5.95%	7.00%	4.05%	2.25%	13.94%	17.28%	14.35%	12.07%	12.60%	15.12%
55 - 59	7.00%	7.00%	4.50%	2.50%	20.50%	24.00%	16.04%	13.49%	14.00%	16.80%
60 - 64	7.70%	7.00%	4.50%	2.50%	20.50%	24.00%	19.41%	16.33%	14.00%	16.80%
65 - 69	7.70%	7.00%	5.40%	3.00%	21.32%	24.96%	19.41%	16.33%	17.50%	21.00%
70 - 74	7.70%	7.00%	5.40%	3.00%	21.32%	24.96%	19.41%	16.33%	17.50%	21.00%
75 - 79	7.70%	7.00%	5.40%	3.00%	22.14%	25.92%	19.41%	16.33%	17.50%	21.00%
80 - 84	7.70%	7.00%	5.40%	3.00%	22.14%	25.92%	19.41%	16.33%	17.50%	21.00%
85 - 89	7.70%	7.00%	5.40%	3.00%	22.14%	25.92%	19.41%	16.33%	17.50%	21.00%
90 +	7.70%	7.00%	5.40%	3.00%	16.40%	19.20%	19.41%	16.33%	17.50%	21.00%

If not controlled, inflation threatens the affordability of health insurance in future.

Total

The final adjusted per capita claims rates and inflation factors produced annual costs that increased from just over $2 billion in 2006 to $115 billion in 2050. As a per cent of taxable income, claims increased from 2.2% in 2006 to 17.25% in 2050. The equivalent level funding per cent was 7.76%. Note, however, that in a private insurance model, pre-funding has little applicability, because private insurers are unlikely to accept the attendant risks.



Supplemental Health – Baseline Scenario

By Age

Costs per capita displayed a fairly consistent pattern. While costs for the age category zero-to-four were quite high, they declined for the next two or three age categories and began to rise thereafter, peaking at ages 90 and above.

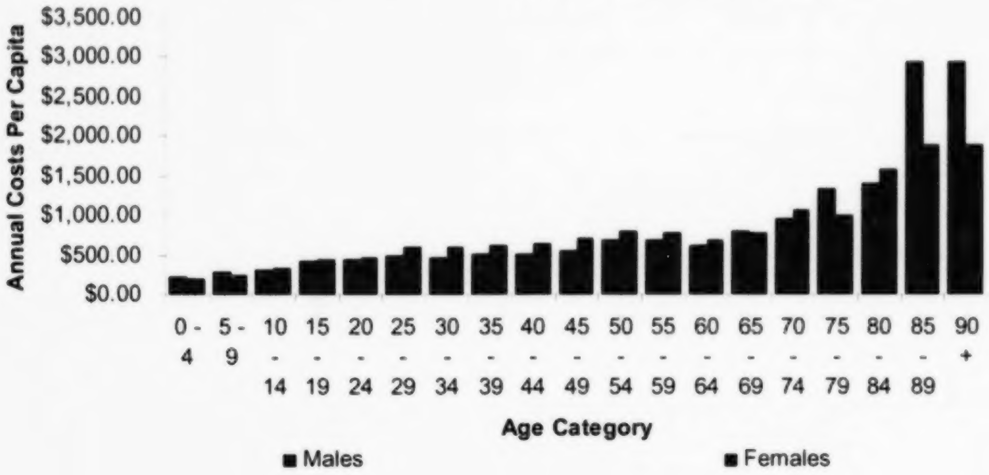
Although per capita costs rose steeply by age, the distribution of covered population by age is such that older ages do not represent the bulk of the claims. Nevertheless, aging of the population is an additional cost driver, as more of the population lives longer.

By Gender

Outside of the child-bearing years, per capita costs for females tended to be lower than for males. This pattern is consistent with other studies and was therefore not unexpected.

Per capita cost rises very steeply with age. Nearly one-third of 2006 costs arise from those age 65 or more. This is projected to increase – the aging population has important implications for the cost of health care.

Supplemental Health – 2006 Per Capita Costs by Age and Gender



Despite generally higher male per capita claim rates, female utilization during the child-bearing years is such that in total females cost more in health care than males.

Total Cost by Age and Gender – 2006

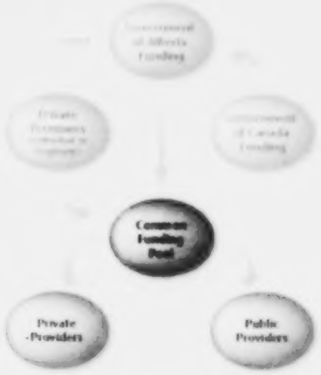
Benefit	Age band	Male	Female	Total
ALL	0 - 4	24,723,886	19,498,443	44,222,328
ALL	5 - 9	30,498,265	25,413,583	55,911,848
ALL	10 - 14	35,541,536	37,060,309	72,601,844
ALL	15 - 19	51,541,197	51,131,899	102,673,096
ALL	20 - 24	54,794,567	54,548,988	109,343,554
ALL	25 - 29	62,425,677	72,840,259	135,265,936
ALL	30 - 34	60,208,795	72,896,052	133,104,847
ALL	35 - 39	64,020,668	74,024,537	138,045,205
ALL	40 - 44	71,702,988	84,253,649	155,956,637
ALL	45 - 49	78,744,871	96,579,784	175,324,656
ALL	50 - 54	82,857,530	93,098,670	175,956,200
ALL	55 - 59	66,099,923	73,700,288	139,800,211
ALL	60 - 64	42,934,133	46,889,098	89,823,230
ALL	65 - 69	40,841,506	41,130,122	81,971,629
ALL	70 - 74	39,048,401	47,925,448	86,973,849
ALL	75 - 79	42,298,831	38,125,671	80,424,502
ALL	80 - 84	26,529,037	45,522,285	72,051,323
ALL	85 - 89	25,499,660	32,597,418	58,097,078
ALL	90 +	9,074,687	15,500,912	24,575,599
		909,386,157	**1,022,737,415**	**1,932,123,572**

Mandatory Public Health Insurance

Key Cost Drivers

The following factors drive cost:

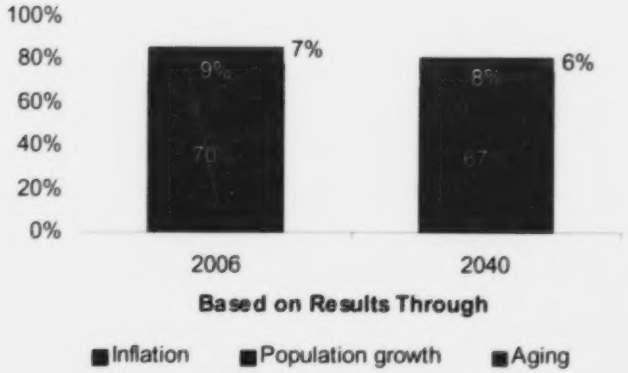
- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations.



From page 2-12

The following graph displays the key sources of growth both through the year 2040 and over the entire projection period.

Supplemental Health – Sources of Growth



For supplemental health, claims inflation is the principal cost driver.

Sustainability

The current growth rate of costs under private insurance is not sustainable. Public insurance does not appear to offer greater scope for demand constraint than the current private model.

Opportunity for Choice

A public system would eliminate the opportunity for choice.

Opportunity to Link Behaviour

The mandatory public health insurance scenario offers little opportunity to link available health care to behaviour, unless the government wishes to consider brand new policy initiatives such as varying the coverage available by health status, e.g., obesity or smoking status, or contemplating the use of cost sharing or other user fees in reimbursing certain types of services.

Sensitivity Testing

No sensitivity testing of this scenario was conducted.

Conclusions

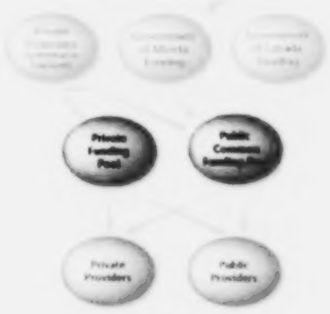
- Currently, these benefits are almost entirely privately insured. Given the anticipated growth rate of all medical care expenses and government's wish to reduce its exposure to such increases, it was decided that there was little sense in performing any additional analysis of publicly funded scenario for these benefits.

Mandatory Public Health Insurance with Private Supplemental Coverage

Key Cost Drivers

The following factors drive cost:

- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations.



From page 2-14

Sustainability

The current growth rate of costs is not sustainable.

Opportunity for Choice

A public system would eliminate the opportunity for choice.

Opportunity to Link Behaviour

As in the previous scenario, the mandatory public scenario offers little opportunity to link available health care to behaviour.

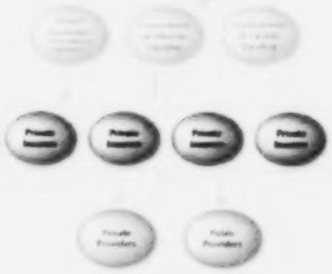
Sensitivity Testing

No sensitivity testing of this scenario was conducted.

Conclusions

- Currently, these benefits are almost entirely privately insured. Given the anticipated growth rate of all medical care expenses and government's wish to reduce its exposure to such increases, it was decided that there was little sense in performing any additional analysis of publicly funded scenario for these benefits.

Mandatory Private Health Insurance



From page 2-21

Since these benefits are currently privately provided, the mandatory private model bears certain similarities to the current situation.

This insurance model is based on the premise that government would mandate minimum benefits that would be required coverage for all Albertans through private carriers. Not all Albertans would be able to afford private premiums, so the model envisages the need for premium subsidies on a household means-tested basis. Private carriers would be free to establish their own costs for the plans they provided. Policyholders and/or plan sponsors would be allowed to negotiate coverage beyond the regulatory minimums.

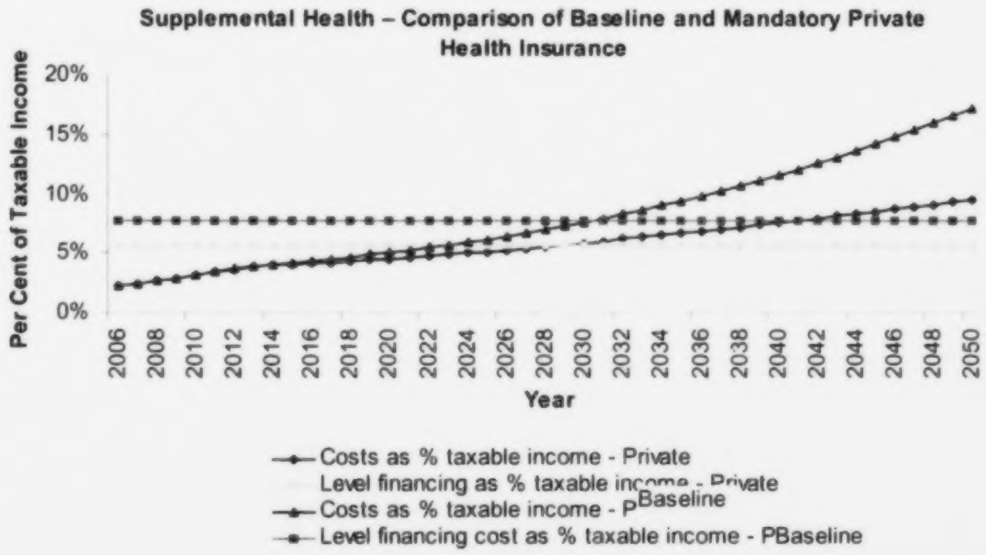
This system would closely resemble the current system, with the chief differences being that minimum coverage would be mandated and all Albertans would need to be insured for at least the minimum coverage.

In this scenario, the expected future inflation was reduced compared to the baseline scenario. As with non-emergency health care, maintaining unreduced future inflation led to costs that were clearly unrealistic and unsustainable. Therefore, revised inflation factors were developed for each age-sex cell and for each benefit grouping as follows:

- Initial inflation factors were unchanged for five years; and
- Beginning in 2011, annual reductions were assumed so that by the year 2015 the inflation assumption was identical to that assumed to apply to non-emergency health care under the mandatory public health insurance scenario.

Annual costs rise from $2.1 billion in 2006 to $63 billion in 2050. Expressed as a per cent of taxable income, the increase is still considerable – rising from 2.2% in 2006 to 8.8% in 2050. The equivalent level funding per cent is 5.6% of taxable income.

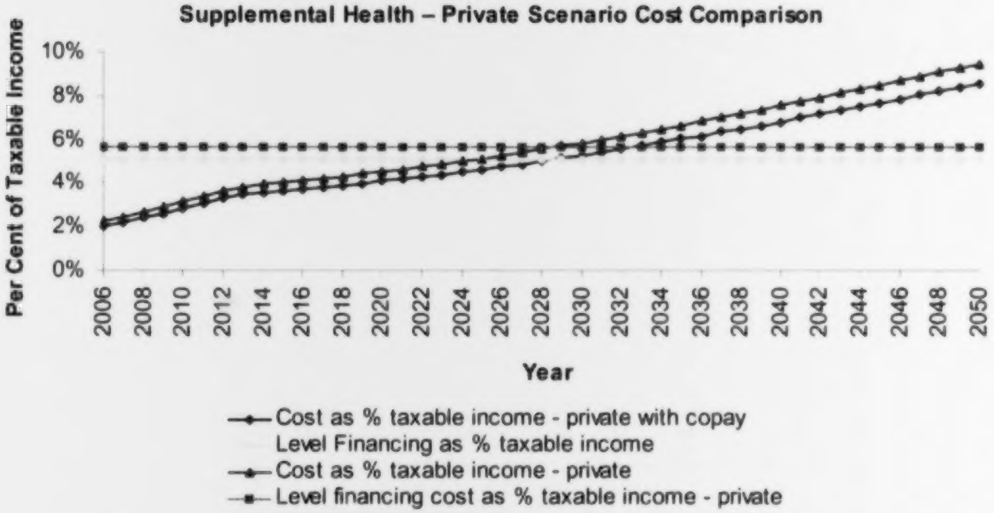
Success in limiting claims growth significantly increases affordability.



Private Scenario Cost Comparison

The projections above include the impact of co-payments, estimated to represent 10% of privately insured costs, in the overall costs. The following graph displays the annual costs and level costs which would fall to private insurers under this scenario, that is, they exclude co-payments. Note that co-payments reduce current costs by making patients share in their cost of treatment. However, they may also drive people to avoid needed care and thereby lead to much greater costs in future.

Co-payments reduce the price of health insurance plans, but their long-term impact on cost is unknown.



Key Cost Drivers

The following factors drive cost:

- Population growth;
- Aging population;
- New technology;
- Rising demand; and
- Provider expectations.

Private carriers include a profit margin in their pricing, which is a factor that has no counterpart in public financing models. In addition, it may well be that moving from a single, centrally administered plan to one with de-centralized administration offered by multiple sources will tend to drive administrative costs up. There is potential to offset this if private carriers succeed in negotiating provider arrangements that offer permanent, compounding savings compared to other models. In summary, this model appears to offer the likelihood of higher initial costs with possible future savings.

Sustainability

This model is as sustainable as the current optional private system of offering supplemental health insurance.

Opportunity for Choice

Consumers who purchase individual coverage would have freedom to choose the plan and the insurer that they wished, so this model offers maximum scope for individual choice. People who have insurance provided through a group insurance contract would be bound by the choice made by their employer, but the employer could choose from all carriers in the market.

Opportunity to Link Behaviour

The opportunity to link to behaviour in this scenario is a function of the plan design(s) mandated by the government.

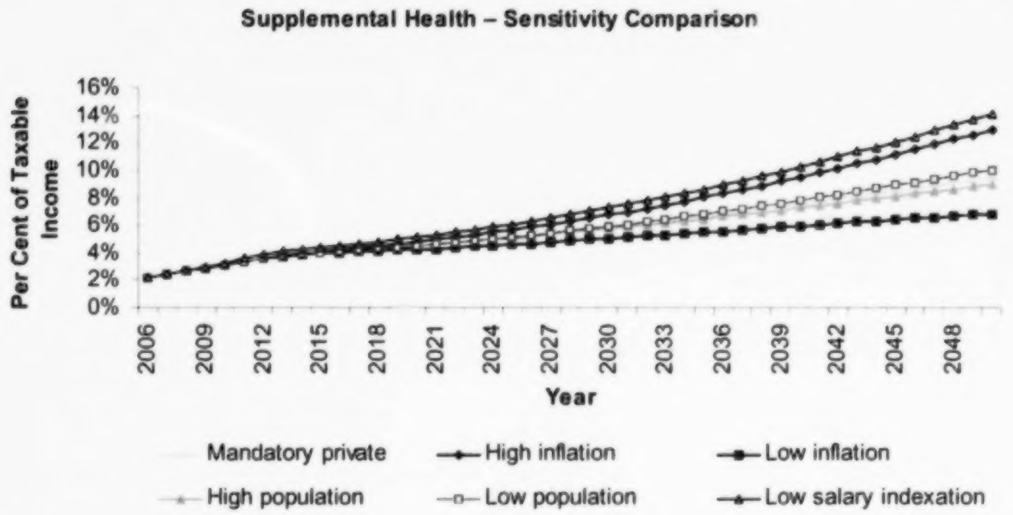
Sensitivity Testing

The following additional scenarios have been tested:

- Ultimate inflation rate 1% higher, at 7%;
- Ultimate inflation rate 1% lower, at 5%;
- High population scenario;
- Low population scenario; and
- Salary indexation of 1% less for under age 65 and 0.5% less for age 65 or more.

The general conclusions are similar to those reached under the non-emergency health models. Low economic growth imposes the greatest burden on the population, with costs projected to exceed 14% of taxable income by the year 2050, followed by high inflation, under which costs approach 13% of taxable income by the year 2050. The other scenarios are relatively benign in their impact on the province's ability to absorb the projected increases.

Low economic growth and high claims inflation are major risks, but under this scenario they are borne by private industry.



Conclusions

- This approach to providing supplemental health care coverage to the population enables all individuals to benefit from a floor of coverage.
- Recognizing that private insurers would consider some individuals to be uninsurable it would be prudent to hold advance discussions with representatives of the private industry to determine how best to ensure coverage for all and appropriate catastrophic coverage.
- The government would need to become involved in oversight to a greater degree than is currently the case.
- The modelling assumption of reduced future inflation has not been validated in practice.

Economic Analysis

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

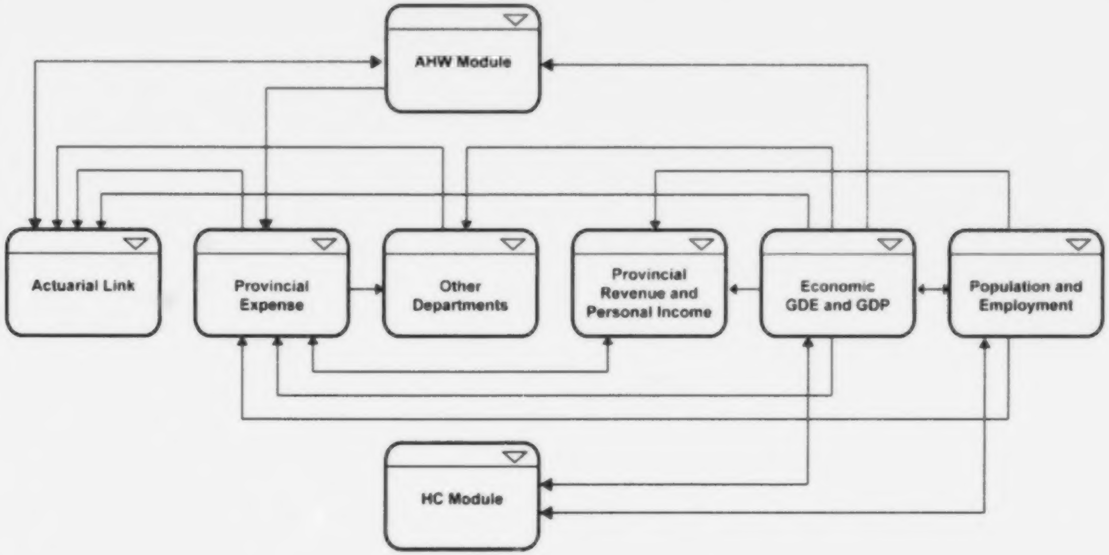
Model Overview

The economic model uses a systems dynamic approach to simulate the economic effects associated with the baseline health care system and conceptual insurance models that have been actuarially modelled. This approach was adopted mainly to respond to the large number of causal factors that could be introduced with a large-scale change to the health care system. It also takes into account the high probability that this would degrade the reliability of analysis based on multivariate regression techniques.

The economic model includes following primary modules:

- Population and Employment;
- Provincial Economy (GDE and GDP);
- Provincial Revenue and Expenses (Public Finance);
- Alberta Health and Wellness revenue and expenses;
- Contributions by Other Government Departments to Health Care;
- Economics of Health Care; and
- Actuarial Model Link.

Chart 1. System Dynamic Model Structure


AHW Module
Actuarial Link
Provincial Expense
Other Departments
Provincial Revenue and Personal Income
Economic GDE and GDP
Population and Employment
HC Module

The model includes approximately 400 variables. Of these, approximately 70 have manageable inputs for testing sensitivity, the impact of different assumptions and policy changes.

As a simulation, the model creates a number of dynamic loops that permit simulation of feedback relationships. The most significant of these are:

- Employment/unemployment and GDP; and
- Health care employment, productivity, health care GDP and provincial GDP.

Primary Data Sources

Data sources used in this model include:

- Alberta Finance's projected population model (three scenarios – high, medium and low);
- Alberta Finance's *Economic Model Projection 2002-2009* (specifically the key indicators were used to ensure that the key economic factors were aligned with current government projections);
- Provincial Expense based on *Historical Fiscal Summary of 2005-08 Fiscal Plan of the Budget 2005*;
- Alberta Health and Wellness Revenue and Expenses based on *Ministry Statement of Operations of the Business Plan 2005-08*;
- Other department contributions based on list of programs in Government of Alberta Ministries, not including Alberta Health and Wellness that provide health funding.
- Historical data for the province found in *Health Care and Social Assistance GDP Statistics Canada data at Basic Price 1984-04* and *Labor Force Survey 1976 -2005.*[27]

The following section reviews the impact that key variables in the economic model have on the outputs. Note that in building on the current Alberta Finance Economic Projections and Demographic data, there are a number of implicit assumptions in the model that cannot be varied. These are noted below where appropriate.

Baseline Analysis

The baseline economic projection incorporates the baseline assumptions of the actuarial models. Furthermore, current taxation and other spending policies are deemed to be constant.

Provincial Finances

For the baseline projection, the key financial impact points for the province of Alberta are as follows:

- In 2016 provincial health care expenses could exceed 50% of the total provincial spending;
- Total provincial expenses may exceed revenue in

2017, putting the province in a deficit position; and

- Consistent deficit spending would eliminate accumulated net financial assets in 2025.

It is important to note that even with Alberta's projected revenue from natural resources, the projected increase in heath care costs will still put the province in a deficit position within the projection period.

Health Care

With current trends, the province will shift to a deficit position in 2016/17 due to rising health care costs.

Projected Fiscal Summary 2005 to 2025
Provincial Income Statement
(Millions of Dollars)

			Current Situation		
	2005	**2010**	**2015**	**2020**	**2025**
Revenue					
Personal provincial tax	$5,062	$7,162	$10,737	$15,893	$23,163
Business provincial tax	$2,372	$2,633	$3,829	$5,537	$7,945
School property tax	$1,268	$1,417	$1,643	$1,905	$2,208
Other tax revenue	$1,920	$2,444	$3,347	$4,557	$6,156
Resource revenue	$12,307	$10,568	$9,075	$7,793	$6,692
Investment income provincial revenue	$1,404	$2,674	$3,068	$2,610	$897
Other own source revenue	$4,114	$5,238	$7,171	$9,762	$13,187
Federal government transfers	$3,413	$4,409	$5,900	$7,895	$10,566
Provincial Revenue	**$31,859**	**$36,547**	**$44,772**	**$55,952**	**$70,815**
Expense					
AHW Expense	$8,879	$13,733	$20,260	$29,489	$43,072
Health (other programs)	$771	$1,139	$1,750	$2,880	$5,080
Total Provincial health care funding	*$9,650*	*$14,872*	*$22,009*	*$32,369*	*$48,152*
Education	$6,482	$7,922	$9,711	$11,828	$14,296
Social services	$2,530	$3,140	$3,848	$4,687	$5,665
Other expense	$6,298	$7,139	$8,751	$10,659	$12,883
Debt servicing cost	$317	$251	$251	$251	$251
Total Provincial Expense	**$25,277**	**$33,323**	**$44,570**	**$59,794**	**$81,247**
Assets					
Net Financial Assets beginning of year	$16,580	$39,056	$46,947	$37,770	$3,509
Capital Assets beginning of year	$10,640	$12,850	$15,224	$17,976	$21,167
Net Assets Beginning of year	**$27,220**	**$51,907**	**$62,171**	**$55,746**	**$24,676**

Canada Health Act Related Funding

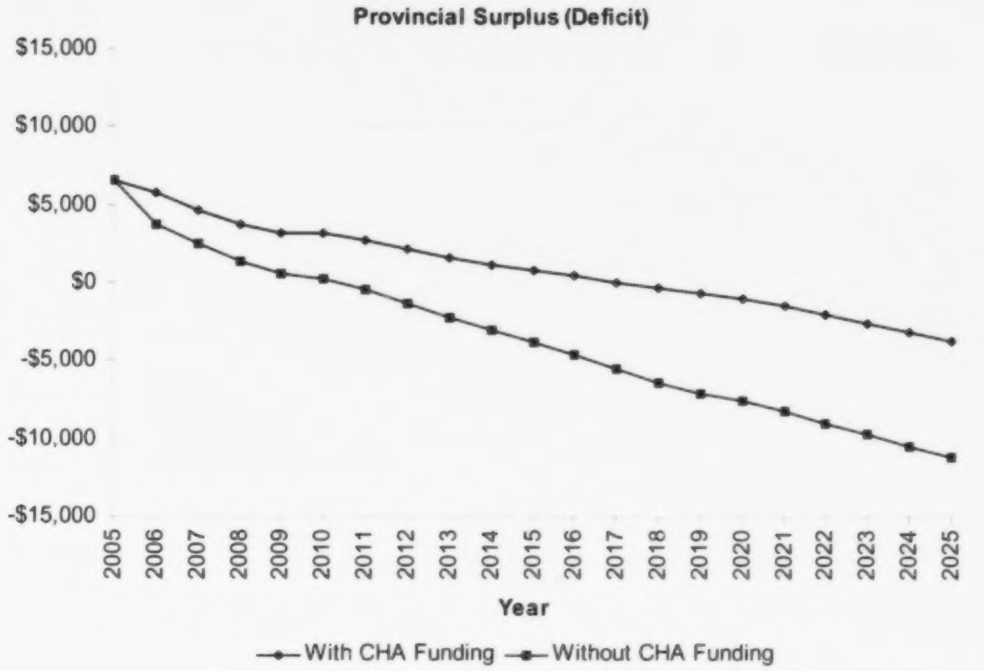
Projected Fiscal Summary 2005 to 2025
Health Care Funding
(Millions of Dollars)

	Current Situation				
Funding	**2005**	**2010**	**2015**	**2020**	**2025**
Public					
Alberta Health and Wellness	$8,879	$13,733	$20,260	$29,489	$43,072
Other departments	$771	$1,139	$1,750	$2,880	$5,080
Total Health Care Public Funding	**$9,650**	**$14,872**	**$22,009**	**$32,369**	**$48,152**
Private					
Insurer funding	$1,984	$4,077	$7,021	$10,591	$15,998
Out-of-pocket	$1,192	$2,277	$3,690	$5,462	$7,956
Total Health Care Private Funding	**$3,176**	**$6,354**	**$10,711**	**$16,053**	**$23,953**
Total Health Care Cost	**$12,827**	**$21,226**	**$32,721**	**$48,422**	**$72,105**
Use of Funds					
Prescription drugs cost	$2,735	$5,698	$9,316	$13,697	$20,008
Continuing care cost	$1,263	$1,749	$2,269	$3,196	$4,674
Non-emergency cost	$4,714	$7,378	$11,454	$17,793	$27,726
Supplementary health cost	$1,830	$3,621	$6,221	$9,402	$14,241
Other health care	$1,900	$2,317	$2,929	$3,710	$4,708
Total Health Care Cost	**$12,827**	**$21,226**	**$32,721**	**$48,422**	**$72,105**

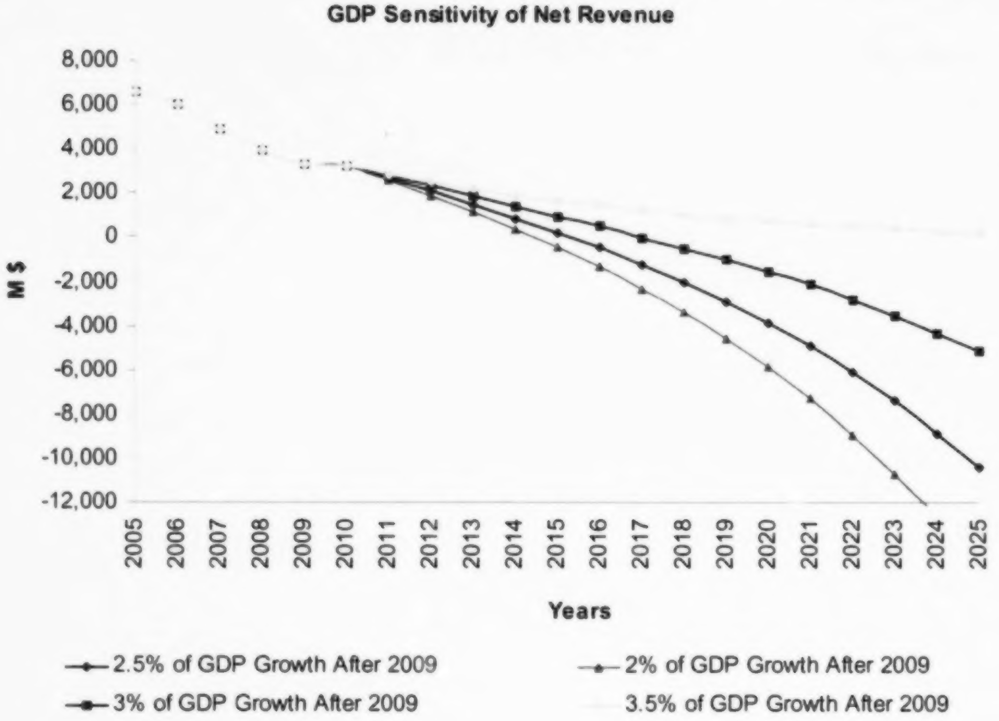
> *For the baseline projection, the most significant trend is private health spending as a portion of total spending due to above average utilization and inflation for supplemental health and prescription drugs.*

GDP Impact on Sustainability

Federal government funding for health care is a significant component of the province's funding. Using the baseline scenario, the total loss of such funding, no matter how unlikely, would shift the deficit break-even point from 2017 to 2010/11 (assuming there are no other changes to revenue).



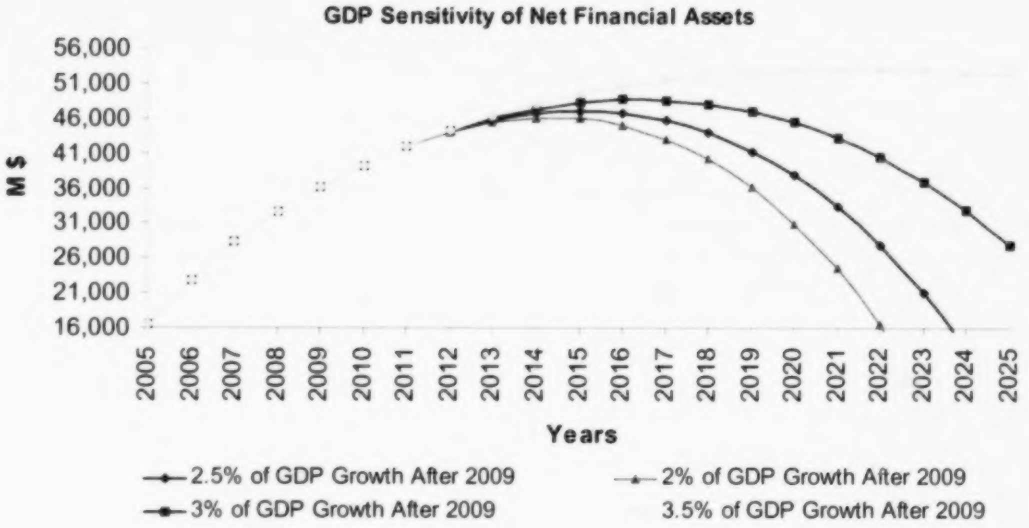
Apart from controlling cost, the growth of the provincial economy is the most significant factor in ensuring sustainable health care. An average real GDP growth rate of 3.5% (until 2025) would be required to prevent a deficit position.



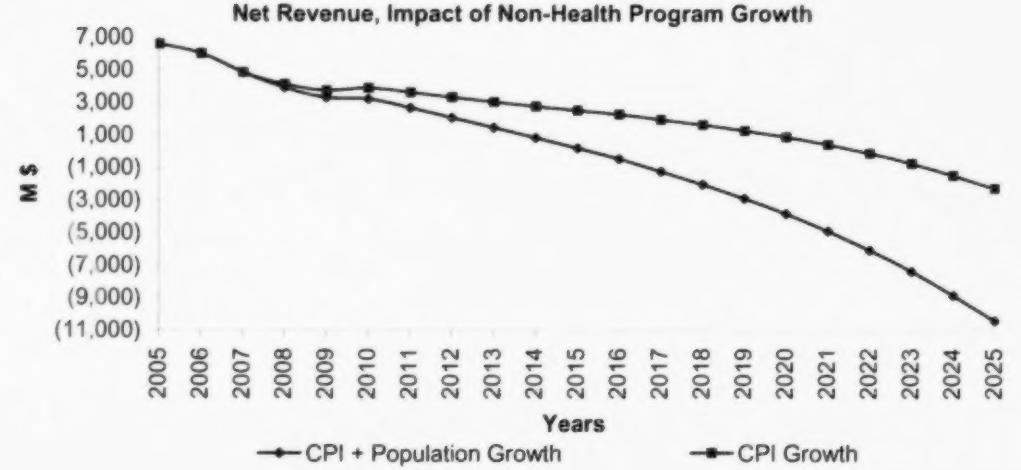
Other Program Cost Impact on Sustainability

The baseline projection largely assumes that non-health costs for the Government of Alberta will increase proportionately to increases in the CPI and population growth. Testing with a non-health care cost growth of the CPI only, implying a reduction in other services, delayed the shift to a net deficit until 2023/24, but did not change the overall trend towards a non-sustainable position.

Similarly, with the higher GDP growth rate and avoidance of a deficit position, the province's net financial assets are maintained and can continue to contribute to revenue through investment income.


GDP Sensitivity of Net Financial Assets

The baseline projection largely assumes that non-health costs for the Government of Alberta will increase proportionately to increases in the CPI and population growth.


Net Revenue, Impact of Non-Health Program Growth

Selected Insurance Plan Impacts

Projections associated with different insurance plans have material impact on sustainability. The specific nature of this effect is largely related to any tax policy changes that would offset a portion of the additional revenue or reduced costs linked to specific insurance models.

Prescription Drugs

The following table summarizes the potential economic impact of the public mandatory insurance with private replacement conceptual model where applied to prescription drugs.

If premiums collected are in addition to current revenue, there is a significant effect as the growth in costs associated with prescription drugs is completely offset with new revenue. As this would have the effect of a large increase in personal taxes, other policy changes would be necessary.

Giving premiums a tax-deductible status has a minor impact on the total surplus as personal income tax rates are relatively low.

Fully offsetting new premiums with a tax reduction would slightly worsen public finances as this is done in conjunction with increased prescription drug costs for the province (slightly increased use for those currently uninsured or under-insured). Any offsetting taxes would need to carefully balance the impact on individuals receiving insurance through their employer and those who would be obtaining insurance through a public provider.

Prescription Drugs

Scenario	**Health Care/Provincial Revenue**		**Net Revenue** *(millions)*
	2005	**2025**	**2025**
Baseline	30%	68%	($10,432)
Public with Private Replacement	29%	53%	$11,976
Public with Private Replacement (with premiums considered tax-deductible)	29%	54%	$9,704
Public with Private Replacement (taxes reduced to account for increased premiums)	30%	72%	($13,112)

Continuing Care

The following table summarizes the potential economic impact of the public mandatory conceptual model as applied to continuing care.

If premiums collected are in addition to current revenue, there is a material effect on net revenue that greatly delays the deficit breakeven point. Note, however, that this is essentially analogous to an increase in personal taxes.

- As this is a mandatory public plan, there is no material impact on costs if the insurance premiums are offset with tax reductions.
- Prior to 2025, pre-funding has no material improvement over the basic mandatory public insurance model. However, as the impact of population aging largely takes place in the 2020 – 2040 period, the longer-term sustainability would be enhanced.

Continuing Care

Scenario	Health Care/Provincial Revenue		Net Revenue *(millions)*
	2005	2025	2025
Baseline	30%	68%	($10,432)
Mandatory Public (no pre-funding)	30%	61%	($2,101)
Mandatory Public (no pre-funding and taxes reduced to account for increased premiums)	30%	68%	($10,432)
Mandatory Public (with pre-funding)	30%	61%	($1,948)

Non-Emergency Health

The following table summarizes the potential economic impact on non-emergency health of a private mandatory insurance with public premium pooling model.

Where productivity gains enabled by the competition encouraged by private insurers meet the actuarial projections, there is a substantial improvement in the province's net revenue position.

The portion of health care within the public sector dramatically decreases (relative to the baseline projection for 2025) as a large portion of health care costs are not paid from the general revenue fund in this scenario. These costs still exist but there is no additional private sector burden, only the funding mechanism changes.

Should all federal transfers be eliminated with this model, there would be an anticipated worsening of public finances, as productivity gains would not offset the lost funding.

Non-Emergency Health

Scenario	Health Care/Provincial Revenue		Net Revenue *(millions)*
	2005	2025	2025
Baseline	30%	68%	($10,432)
Private with Public Pooling (taxes reduced to account for increased premiums)	30%	28%	($3,691)
Private with Public Pooling (taxes reduced to account for increased premiums and elimination of federal transfers)	30%	32%	($11,204)

Other Comments

Based on current projections, rising health care costs would create a deficit for the Government of Alberta by 2017. The primary factors for improving this are:

- Economic growth above baseline projections, increasing provincial revenue sufficiently to offset the increase in costs. Sensitivity testing indicates that a long-term rate of 3.5% real growth is required.

- Reducing health care costs beyond those estimated in the base actuarial projections. Ideally this will be done by increasing productivity through operational improvements or additional capital investment, limiting growth in health care labour requirements and subsequent wage inflation pressures.
- Offsetting increases in health care costs with a net increase in revenue to the health care sector, either through increased taxes or new health insurance premiums (that are not fully offset by tax reductions). This may impact Alberta's relative tax level, requiring careful balancing of any increase in costs with the relative taxes and premiums levied in other jurisdictions.

Methodology Overview

Unemployment – GDP Relationship

The summary table includes results of regression analysis of relationships between unemployment and GDP growth based on historical annual data of Statistics Canada (*Labor Force Survey 1981-2004 and GDP 1981-2004*).

Summary Table

Variable	Coeff.	Std.Err.	t Stat.	P-value	Lower 95%	Upper 95%
Intercept	0.026	0.009	2.786	0.014	0.006	0.046
GDP growth	-0.159	0.032	-4.974	0.000	-0.227	-0.091
unempl_1st	1.526	0.153	9.952	0.000	1.199	1.853
unempl_2nd	-0.781	0.169	-4.632	0.000	-1.141	-0.422
unempl_4th	0.102	0.061	1.673	0.115	-0.028	0.232

Regression Statistics

Multiple R	R Square	Adj. R Sqr	Std. Err.	# Cases	# Missing	Deg. Free	t(2.5%, 15)
0.979	0.957	0.946	0.009	20	4	15	2.131

Based on the regression there is a clear loop between unemployment and GDP, and these results were used to absorb the component of unemployment related to GDP growth. Furthermore, unemployment was defined as a function of the sum of the historically performed part of unemployment and a component related to GDP growth (with negative coefficient 0.159).

Health Care Module Sensitivity Testing

To analyze accumulated impact for the 2006-2025 time period, sensitivity analysis was conducted for the *Sum of Real Health Care GDP* (in Constant 1997 Dollars). The critical factors for Health Care GDP are productivity and employment in health care (assuming level unemployment rates). In both cases a 1% increase contributes to 12% growth in the Sum of Real Health Care GDP.

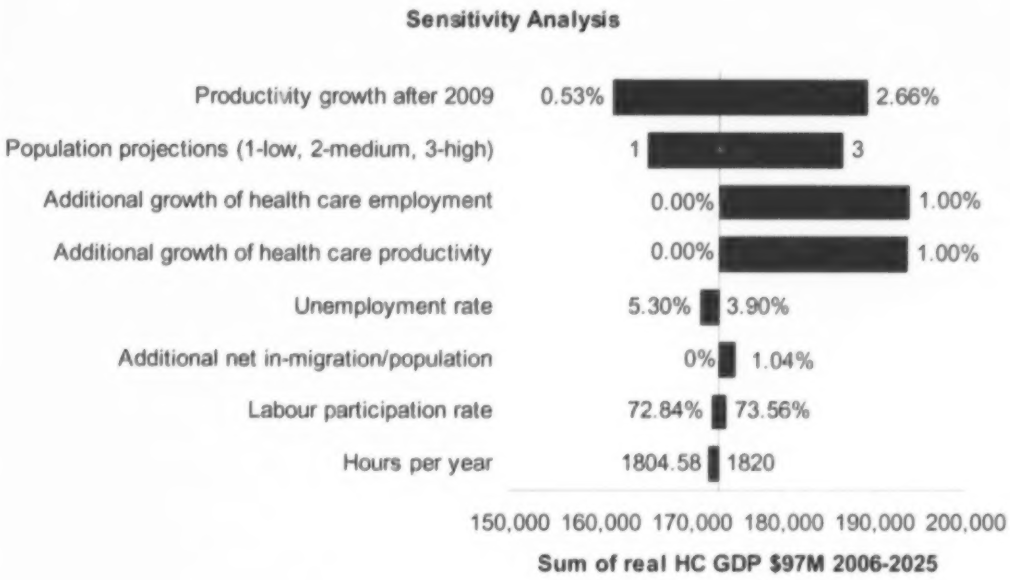
Note that productivity, which is defined as a function of GDP divided by working hours, and employment contributions to GDP have a proxy effect on the used capital stock influence. Essentially, one expects the 2006-2025 Sum of Real Health Care GDP to increase by 12% in response to a 1% increase in employment. This is due to the assumption that there is sufficient capital stock to ensure the larger labour force's productivity rate is unchanged. Even with the proxy effect, productivity growth is found to be a major factor in increasing Health Care GDP.

Insofar as there is a significant difference in productivity, and that health care workers are highly educated (minimizing an education effect), the productivity gap is largely defined by:

- Lack of available or used tools to work more productively; and/or
- Sub-optimal operational efficiency level.

Input Variable	Input Values			Output Values (Sum of Real GDP $97M 2005-2025)					
	Low	Base	High	Low	Base	High	Change	Swing	Per Cent Variance
Productivity growth after 2009	0.53%	1.48%	2.66%	161,190	172,899	189,054	9.3%	27,864	37.0%
Population projections (1-low, 2-medium, 3-high)	1	2	3	165,081	172,899	186,430	7.8%	21,350	21.7%
Additional growth of health care employment	0.00%	0.00%	1.00%	172,899	172,899	193,585	12.0%	20,686	20.4%
Additional growth of health care productivity	0.00%	0.00%	1.00%	172,899	172,899	193,523	11.9%	20,624	20.3%
Unemployment rate	3.90%	3.90%	5.30%	172,899	172,899	170,785	-1.2%	2,114	0.2%
Additional net in-migration/population	0%	0%	1.04%	172,899	172,899	174,697	1.0%	1,798	0.2%
Participation rate	72.84%	73.21%	73.56%	172,157	172,899	173,584	0.4%	1,427	0.1%
Hours per year	1804.58	1820	1820	171,670	172,899	172,899	0.0%	1,229	0.1%

Productivity growth is a key factor for cost effective increases to Health Sector GDP.

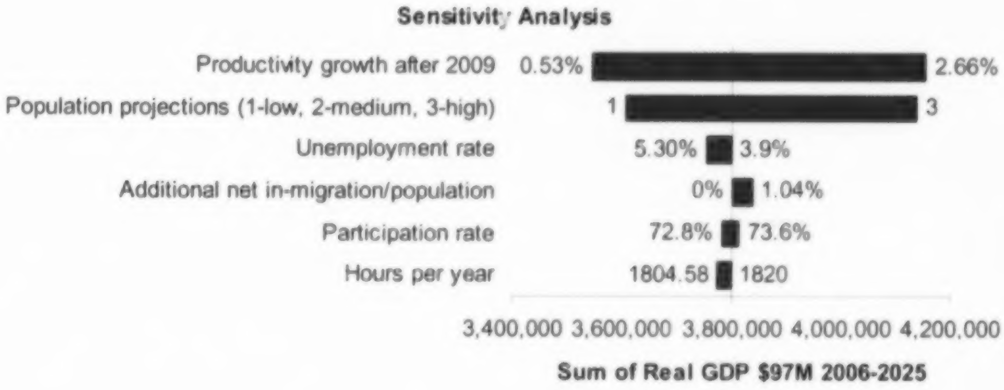


Provincial Economy Sensitivity Testing

The sensitivity chart above provide analysis of 2006-2025 *Sum of Real Alberta GDP* (in Constant 1997 Dollars). As is the case with *Sum of Real Health Care GDP*, productivity and employment growth are highly correlated with the GDP projections. Thus, an increase in productivity after 2009 by 1.18% increases the *Sum of Real Alberta GDP* by 9.34%. Switching to the high projection of population increases *Sum of Real Alberta GDP* by 8.94%.

Productivity and population growth dominate GDP projections where full employment is assumed.

		Input Values				Output Values (Sum of Real GDP $97M 2005-2025)			
Input Variable	**Change**	**Low**	**Base**	**High**	**Change**	**Low**	**Base**	**High**	**Change**
Productivity growth after 2009	-0.95%	0.53%	1.48%	2.66%	1.18%	3,543,007	3,800,125	4,154,881	9.34%
Population projections (1-low, 2-medium, 3-high)		1	2	3		3,605,352	3,800,125	4,139,735	8.94%
Unemployment rate	0.00%	3.90%	3.90%	5.30%	1.40%	3,800,125	3,800,125	3,753,710	-1.22%
Additional net in-migration/population	0.00%	0%	0%	1.04%	1.04%	3,800,125	3,800,125	3,839,647	1.04%
Participation rate	-0.37%	72.8%	73.2%	73.6%	0.35%	3,783,838	3,800,125	3,815,170	0.40%
Hours per year	-0.85%	1804.58	1820	1820	0.00%	3,773,131	3,800,125	3,800,125	0.00%

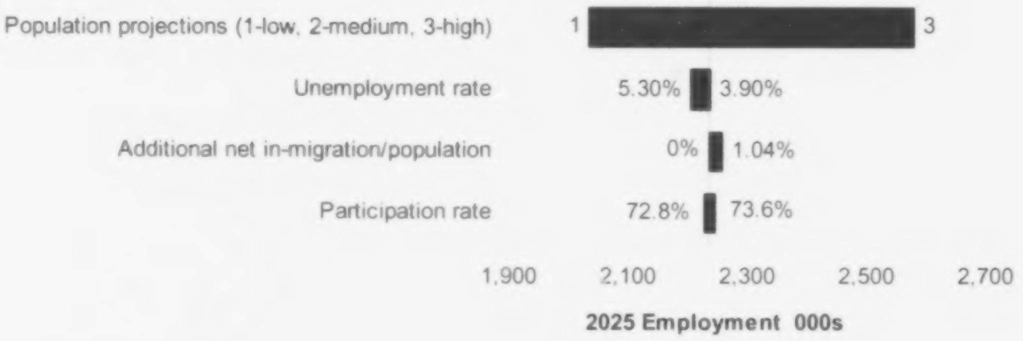


Employment Sensitivity Testing

Full employment is a major source of high GDP growth, assuming that the capital stock is sufficient to utilize a growing labour force without decreasing current productivity levels. As indicated in the following chart, variations in the population projections provided by Alberta Finance are the primary determinants of this module's variability. If the assumptions underlying this demographic projection are realized, the increased population growth could create a 15.27% increase in employment growth by 2025. Given the assumptions of the population projection, it is not surprising that the changes to the unemployment rate are relatively linear (i.e., an increase of 1.4% in unemployment creates a reduction in total employement of 1.46% by 2025).

		Input Values				Output Values (Sum of Real GDP $97M 2005-2025)			
Input Variable	**Change**	**Low**	**Base**	**High**	**Change**	**Low**	**Base**	**High**	**Change**
Population projections (1-low, 2-medium, 3-high)		1	2	3		2,032	2,237	2,579	15.27%
Unemployment rate	0.00%	3.90%	3.90%	5.30%	1.40%	2,237	2,237	2,204	-1.46%
Additional net in-migration/population	0.00%	0%	0%	1.04%	1.04%	2,237	2,237	2,260	1.04%
Participation rate	-0.37%	72.8%	73.2%	73.6%	0.35%	2,225	2,237	2,247	0.47%

Sensitivity Analysis



The model's employment data is heavily influenced by the assumptions in Alberta Alberta Finance's population projections.

Provincial Government Revenue

The model does not reflect the impact of changes to the implicit tax rate on productivity and economic growth. Should a relationship between the implicit tax rate and productivity be identified, the model can be subsequently extended to accommodate this.

Health Outputs

There are suggestions that improvements in population health positively impact productivity and employment participation rate, leading to GDP growth. With the data available to this study, no strong relationship function could be identified between health outputs and productivity or GDP. Such analysis could be improved by additional data on capital stocks and other parameters impacting productivity. Furthermore, the time frame of the data could be extended (data permitting) to account for the considerable lag between improvement in health outcomes and economic impact.

General Comments on Multiplier

A reliable regression could not be found where the multiplier could be more than one within the scope of the analysis.

Vignettes

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Overview

The purpose of these illustrations is to demonstrate the expected pattern of funding contributions, available income and projected costs for a selection of representative households at different points in time. In each case, the costs and expected claims are carried forward to capture the anticipated results associated with the household, as the individuals in it age.

Five households, designed to capture a range of differently situated individuals or families were modelled:

- Lance Lake, single male, aged 22
- Joseph and Mary Allison, aged 32, two children, boy aged seven and girl aged two
- Daniel and Celeste Denison, aged 42, with three children, boy aged 17, girl aged 12 and boy aged seven
- Arthur and Jenn King, aged 52, no children
- Jessica Langley, pensioner, aged 72

In each scenario, an appropriate average income was assumed for the individual or household.

The analysis compares expected average costs to the health care system, financing contributions and net income at different future points in time. It captures changing relationships among these three items as circumstances change in normal age-related patterns.

The points in time selected for comparison were 2006, 2020 and 2040.

The modelling includes prescription drugs, continuing care and non-emergency health. Supplemental health was not included in the model as it is already provided privately.

Vignette 1

Lance Lake is a 22-year old single male in 2006. Over time, his projected funding contributions, costs and net income are as follows:

	2006		2020		2040	
Funding contribution	$3,042	25%	$21,471	29%	$54,027	29%
Health service costs	$953	8%	$3,835	5%	$31,927	17%
Net income	$12,100	100%	$75,000	100%	$189,000	100%

By 2040, Lance has reached age 56, but he has yet to cost the system more than he has contributed to it. This illustrates the generational transfer of costs that results from implementing level funding for all. Lance's funding contribution is greater than the amount needed to pay for his own costs, because he also needs to pay for the increased utilization on the part of those currently older than he is.

Vignette 2

Joseph and Mary Allison are a young couple, both aged 32 in 2006, with two children, a son aged seven and a daughter aged two. Over time, their projected funding contributions, costs and net income are as follows:

	2006		2020		2040	
Funding contribution	$14,757	26%	$42,423	35%	$28,546	28%
Health service costs	$5,800	10%	$18,226	15%	$90,387	89%
Net income	$57,600	100%	$122,000	100%	$102,000	100%

By 2040, at age 66, Joseph and Mary will have begun to cost the system more than they contributed to it. The crossover point occurs, roughly, at age 60. Note that since costs are projected to grow more rapidly than income, the gap between the two is expected to grow over time.

Vignette 3

Daniel and Celeste Denison are a middle-aged couple, both aged 42 in 2006, with three children, a son aged 17, a daughter aged 12 and a second son aged seven. Over time, their projected funding contributions, costs and net income are as follows:

	2006		2020		2040	
Funding contribution	$19,308	30%	$37,917	31%	$27,329	28%
Health service costs	$5,978	9%	$19,456	16%	$165,651	167%
Net income	$65,000	100%	123,000	100%	$99,000	100%

Vignette 4

Arthur and Jenn King are an older couple, both aged 52 in 2006. Their children are adults, who no longer live with their parents. Over time, their projected funding contributions, costs and net income are as follows:

	2006		2020		2040	
Funding contribution	$11,017	28%	$9,305	26%	$13,427	26%
Health service costs	$5,309	13%	$27,306	76%	$214,065	412%
Net income	$40,000	100%	$36,000	100%	$52,000	100%

Shortly after 2006, Arthur and Jenn's received health services exceed their contribution. This amount becomes extremely large over time. In essence, they benefit from the excess contributions paid by younger individuals like Lance Lake.

Vignette 5

Jessica Langley is a single pensioner, aged 72 in 2006. Over time, her projected funding contributions, costs and net income are as follows:

	2006		2020		2040	
Funding contribution	$4,799	25%	$6,196	26%	N/A	N/A
Health service costs	$6,872	36%	$37,955	158%	N/A	N/A
Net income	$19,000	100%	$24,000	100%	N/A	N/A

Throughout the projection period, Jessica is expected to cost the system more than she contributes.

Vignettes – Summary Observations

The five vignettes illustrate several characteristics of level percentage financing costs:

- The fact that no previous pre-funding has been conducted means that the vast majority of the current population will not fund their own costs over their remaining lifetime. Consequently, the funding rate for younger individuals is higher than it would be if they only needed to fund their own lifetime costs.
- The required funding contributions are significant. Taken as a whole, they divert very large amounts of money within the economy from consumption into forced savings.

Additional Analyses

Overview

In recognition of the fact that Alberta expects to produce budget surpluses for the next several years, the impact on pre-funding was modelled, should some of the available surplus be committed towards reducing the cost of pre-funding. Various possibilities were considered; the following were adopted:

- Single amounts available in 2006:

  $1 billion for each benefit grouping

  $2 billion for each benefit grouping

  $5 billion for each benefit grouping

  $10 billion for each benefit grouping
- Recurring amounts (for five years):

  $1 billion for each grouping

  $2 billion for each grouping

  $5 billion for each grouping

  Note that for these purposes, supplemental health was not included in the model as it is already provided privately.

In addition to the above, the decision was made to test the impact of a government endowment of required funding contributions. The available endowment was assumed to be either $5 billion or $10 billion in total. In each case it was assumed to be applicable for either five or 10 years.

The above scenarios tested the impact of different levels of government support for the overall funding system. In addition to this testing, given the potentially negative impact of the pre-funding charge needed to provide for all costs incurred to 2050, alternative approaches to pre-funding were modelled:

- Pre-fund only the first 10 or 20 years of projected costs.
- Determine the "step-up" level per cent necessary to pre-fund costs over consecutive 10-year periods. This approach tested the possibility that the economy might be better able to tolerate gradual increases in the funding rate, rather than the abrupt increase needed to pre-fund through to 2050.
- Test the impact of a three-year deferral of pre-funding.
- Test the cost impact to the province of possible endowments for the insurance models.

Scenarios

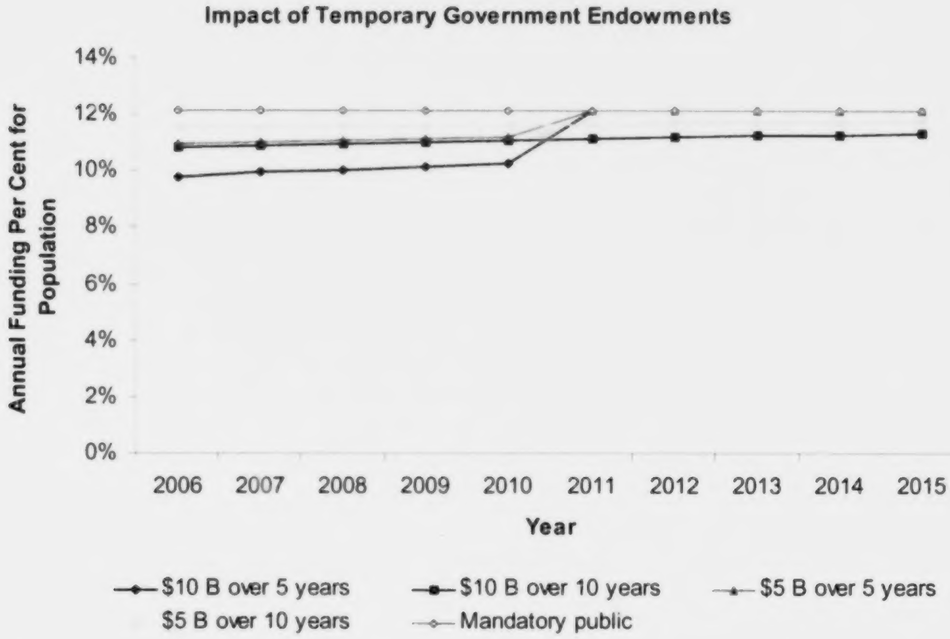
1. Differing levels of government financing support for the population as a whole

   The results of the different types and amounts of government support are summarized in the following table:

	Prescription Drugs	**Continuing Care**	**Non-Emergency**	**Total Endowment**
Mandatory Public – No Support	7.98%	2.39%	12.16%	N/A
One-Time $1B	7.95%	2.36%	12.13%	$3B
One-Time $2B	7.93%	2.34%	12.11%	$6B
One-Time $5B	7.85%	2.26%	12.03%	$15B
One-Time $10B	7.72%	2.13%	11.90%	$30B
Recurring $1B	7.86%	2.27%	12.04%	$15B
Recurring $2B	7.75%	2.16%	11.93%	$30B
Recurring $5B	7.40%	1.81%	11.58%	$75B
$5B Endowment – 5 years	6.89%	1.30%	11.10%	$15B
$5B Endowment – 10 years	7.44%	1.85%	11.63%	$15B
$10B Endowment – 5 years	5.81%	0.22%	10.04%	$30B
$10B Endowment – 10 years	6.90%	1.31%	11.11%	$30B

Note – After either five or 10 years in the last four scenarios above, the funding percentage reverts to the full contribution required for the benefit group.

The projected costs grow so rapidly that it is very difficult for the government to materially reduce them without advance commitments of very large amounts of money. The last four scenarios above display the impact of different levels of government endowment of the total funding costs on the population. This may not be the most useful way to illustrate these results. Consider the following graph:



The graph above shows that projected temporary endowments can have a noticeable impact on the costs to the population over either the first five years or the first 10 years. Even with these endowments, the costs required to pre-fund to 2050 are significant – they would not be easily carried by the population.

2. Differing approaches to pre-funding

- Defer for three years:

	No Deferral	Three-Year Deferral
Prescription Drugs	7.98%	8.89%
Continuing Care	2.39%	2.49%
Non-Emergency Health	12.16%	13.23%

If Alberta is interested in implementing pre-funding, this must be done quickly. The price of delay will be significant.

- Shorten the pre-funding period:

	To 2050	10 years	20 years
Prescription Drugs	7.98%	3.85%	4.84%
Continuing Care	2.39%	1.53%	1.64%
Non-Emergency Health	12.16%	6.55%	7.79%

Shortening the pre-funding period appears to offer mixed prospects. The projected costs for continuing care look quite manageable. However, continuing care is the least expensive of the benefit groups. Results for prescription drugs and non-emergency health are not economically viable.

- "Step-up" level per cent funding:

	To 2015	To 2025	To 2035	To 2045	To 2050
Prescription Drugs	3.85%	5.84%	8.15%	11.52%	15.07%
Continuing Care	1.53%	1.75%	2.64%	3.35%	3.37%
Non-Emergency Health	6.55%	9.02%	12.65%	17.32%	20.97%

Unless a means can be discovered to reduce growth in costs, "step-up" pre-funding does not appear to have enough impact to significantly reduce the burden on the population. In addition, the adoption of such a system requires the implementation of future increases, which would need to be justified to and accepted by the population.

3. Permanent Population Subsidies

Should Alberta choose to adopt any form of premium payment as the basis for providing for the costs of public health care, those without the financial means to pay for their own insurance would require financial support. The specific system adopted is a decision to be taken by the Alberta government and must necessarily reflect a mix of policy, social and financial considerations. For example, any system that is based on excluding the first $X of income for the entire population for funding purposes is liable to exclude an amount of income so large, that the resulting contributions would be completely unsupportable. A system was tested in which:

- Those with less than $10,000 in taxable income are fully subsidized;
- Those with $10,000 or more of taxable income but less than $20,000 are partly subsidized; and
- Those with $20,000 or more of taxable income are not subsidized at all.

In this system, the cost of subsidies was limited to 2.2% of total costs.

The following tables show the impact of subsidies on level funding requirements.

Funding Comparison for 2006

Benefit Grouping	Level Funding Per Cent	Level Funding with Subsidies	Impact of Subsidies
Prescription Drugs	7.98%	8.16%	0.18%
Continuing Care	2.39%	2.44%	0.05%
Non-Emergency Health	12.16%	12.43%	0.27%

Annual Cost Comparison ($000,000's)

	Year							
	2006	**2007**	**2008**	**2009**	**2010**	**2015**	**2020**	**2025**
Prescription Drugs								
Level funding without subsidies	7,431	7,852	8,312	8,769	9,245	11,859	14,970	18,613
Subsidy required	167	177	187	197	208	267	337	419
Continuing Care								
Level funding without subsidies	2,225	2,351	2,489	2,626	2,768	3,551	4,483	5,574
Subsidy required	50	53	56	59	62	80	101	125
Non-Emergency Health								
Level funding without subsidies	11,325	11,966	12,668	13,364	14,089	18,074	22,815	28,367
Subsidy required	255	269	285	301	317	407	513	638

Actuarial Methodology

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Population

The population of Alberta was projected until year 2050 for cost projections and financing purposes. These projections take into account mortality improvements as well as net emigration.

Projections were derived based on Alberta Finance's three projections: Low, Medium and High. (See Tables 1.1 to 1.3)

Note that Alberta Finance's projections give the number of persons per gender and five-year age-bands, from age-band 0-4 to age-band 95+, from the years 2003 to 2026. These projections do not include any mortality improvements.

Projection of Age-bands 0-4

From the Alberta Finance data, "0-4 age-band generating ratios" over five-year periods, were defined as the number of persons in age-band 0-4 in year y+5 divided by the number of women between the ages of 20 and 39 in years y+1 to y+5. The ratios derived for year y+5 = 2026 have been assumed to remain the same in following years. These ratios have been used to project the 0-4 age-bands until year 2081.

Projection of Age-bands 5-9 to 60-64

From the Alberta Finance data, "cohort replacement ratios" over five-year periods, were defined as the number of persons in age-band (x+5)-(x+9) in year y+5 divided by the number of persons in age-band (x)-(x+4) in year y. This was done for x=0 to x=55 and for y=2003 to y=2021. These ratios take into account mortality without improvement and net emigration.

For the same cohorts, the cohort replacement ratios over five-year periods were taking into account mortality without improvement, and no migration. This has been done based on Alberta's mortality rates for years 1995-1997, published on Statistics Canada's website: http://www.statcan.ca/francais/freepub/84-537-XIF/tables/txttables/altam_f.txt and http://www.statcan.ca/francais/freepub/84-537-XIF/tables/txttables/altaf_f.txt. (See Table 1.4)

Net emigration ratios were then derived. The net emigration ratios for year 2026 have been assumed to remain the same in following years.

Mortality improvement factors were used as defined in the Scale AA published in Transaction of Society of Actuaries 1995, Vol. 47. (See Table 1.5)

Finally, mortality improvement factors were combined with net emigration ratios to project the population until year 2081.

Projection of Age-bands 65-69 to 95+

From the Alberta Finance data, "cohort replacement ratios" over five-year periods, were defined as the number of persons in age-band (x+5)-(x+9) in year y+5 divided by the number of persons in age-band (x)-(x+4) in year y. This was done for x=60 to x=90 and for y=2003 to y=2021. These ratios take into account mortality without improvement. No migration for ages over 65 was also assumed.

The ratios derived for year y+5 = 2026 have been assumed to remain the same in following years.

For years 2008 and onwards, mortality improvement factors were used as defined in the Scale AA published in Transaction of Society of Actuaries 1995, Vol. 47, in order to modify the ratios calculated above and to project the population until year 2050.

Final Results

Final values were rounded to the closest five units. (See Tables 1.6 to 1.8)

Income

Income for the entire population of Alberta was projected.

Income per Individual

Income per individual was projected based on data provided by Canada Revenue Agency (CRA) for the 2002 tax year on its website http://www.cra-arc.gc.ca/agency/stats/gb02/pst/final/pdf/ab/table6-e.pdf. (See Table 2.1) Based on the general population data, the number of individuals without any income was derived in each age-band.

According to the Government of Alberta projections, the population's total personal income is estimated to have increased by 25.2% from 2002 to 2006. In order to replicate this increase, CRA's data to tax year 2006 was projected by using an increase rate of 4% per annum for the income of persons aged less than 65, and an increase rate of 2% per annum for the income of persons aged 65 and over. The distribution of income by age-band and income-band for year 2006 was then derived. (See Tables 2.2 and 2.3)

Income per Household

The income per household was projected based on data provided by Statistics Canada for the 2003 tax year for households with one and two adults separately. (See Table 2.4)

As was done for income per individual, Statistics Canada's data to tax year 2006 was projected by using an increase rate of 4% per annum for the income of persons aged less than 65, and an increase rate of 2% per annum for the income of persons aged 65 and over. The distribution of income by age-band and income-band for year 2006 was then derived. (See Tables 2.5 and 2.6)

Consistency

Consistency between projected income per individual and projected income per household was verified.

Projection to Future Years

It was assumed that the income of persons aged less than 65 will increase at a rate of 4% per annum, and that the income of persons aged 65 and over will increase at a rate of 2% per annum.

It was also assumed that the income of households where the older partner is aged less than 65 will increase at a rate of 4% per annum, and that the income of households where the older partner is aged 65 or more will increase at a rate of 2% per annum.

It was assumed that, within an age-band, the proportion of individuals or households in each income-band would remain the same as in year 2006 for the following years.

Commentaries on Income Increases

It was assumed that the income of active persons would increase at an annual rate equal to the general consumer price index (CPI) plus 1% to recognize productivity gains. Moreover, it was assumed that, after age 65, income would increase at a rate equal to half the increase rate used for active persons, in order to take account of the fact that some private pensions are not indexed or are partially indexed, and that some government program pensions are indexed at the CPI rate.

These assumptions are consistent with the fact that the average CPI was close to 3% in Alberta from 2002 to 2005. Furthermore, it was assumed that the CPI in Alberta would be equal to 3% in the future years.

Public/Private Differential

It can safely be stated that the substitution of private insurance for public is likely to alter the projected stream of costs. What is more difficult to predict is the total impact of such a substitution. In summary, the following are principal considerations:

- Private insurance will include profit margins.
- Under private insurance there may be increased administration margins (first because a single-payer system is replaced by a multiple-payer system and second because private insurers will likely have sources of administrative costs that public insurers will not have e.g., enrolment and billings, actuarial valuation, underwriting and sales).
- Private insurers may have a greater incentive to manage claims costs than a public carrier would, which may mean that savings would emerge over time to offset at least some of the first two items in the example above.

It is believed that the savings outlined in the third bullet above will not arise in connection with prescription drug benefits. This is because drug costs are principally driven by pharmaceutical pricing practices rather than by items like productivity that are perhaps more amenable to insurer control or influence. Thus when moving from public to private, the expected impact is an initial increase with the possibility of future savings, if the private insurers are successful in limiting cost inflation in the future.

Prescription Drugs

Drug costs are made of the sum of the following groups:

- Prescribed drugs:
  - Alberta Health and Wellness sponsored drug plans, including Alberta Health and Wellness contracts with Alberta Blue Cross to offer three supplementary health plans for the following client groups:
    - Non-Group Coverage, available to all Albertans under the age of 65 years, and their dependants;
    - Coverage for Seniors, for all Albertans 65 years of age and older and their dependants, and for recipients of the Alberta Widows' Pension and their dependants; and
    - Palliative Care Drug Coverage, for people diagnosed as being palliative and receiving their treatments at home.
  - Other Alberta ministerial drug benefit programs:
    - Alberta Human Resources and Employment;
    - Alberta Children's Services and Alberta Seniors; and
    - Community Supports (AISH) clients.
  - Alberta government-sponsored drug programs:
    - The Alberta Blue Cross Non-Group Coverage (Group 1) offered by the Alberta Health Care Insurance Plan;
    - The Alberta Blue Cross Coverage for Seniors (Group 66) provided to all Alberta senior citizens and those on the Alberta Widows' Pension Plan (Group 66A);
    - The drug coverage provided to individuals approved by Alberta Health and Wellness for Palliative Care Drug Coverage (for these individuals the Palliative Care Drug Benefit Supplement must also be considered); or
    - The drug coverage provided to Alberta Human Resources and Employment, Alberta Children's Services and Alberta Seniors and Community Supports (AISH) clients (for these clients the Alberta Human Resources and Employment Drug Benefit Supplement must also be considered).
  - Indirect Government of Alberta drug spending:
    - Cancer drugs; and
    - Province Wide Services (HIV, transplant drugs).
- Non-prescribed drugs.

Incidence Rates

Incidence rates will vary differently from one therapeutic class to another. For each of the 10 therapeutic class groupings used (see Table 3.1 in Appendix), relative incidence rates were established in year 2020 and these rates were interpolated linearly between 2006 and 2020. (See Table 3.2 in Appendix). It was assumed that the 2020 rates will remain the same for the future years. Incidences rates were established per five-year age-band and per gender. Incidence rates were established at 100% from 2004 to 2006.

Costs for Year 2004

Since, as previously mentioned, incidence rates will vary differently from one therapeutic class to another, average drug costs were determined per person, for various therapeutic class groupings. In order to take account of expected variations in the Alberta population demography, average drug costs were established per five-year age-band and per gender.

Comprehensive data on claims submitted to Alberta Health and Wellness (AHW) programs for the 2004-2005 fiscal year were received from Alberta Health and Wellness. Based on Table 4.3 of AHW Alberta Health Care Insurance Plan Statistical Supplement 2003/2004, first the number of members in AWH programs in fiscal year 2004-2005, and then the average prescribed drug costs per age-band were projected. Since the AHW data provided eligible claim as well as paid claim information, cost sharing between the government and the insureds were derived. (See Table 3.3)

Comprehensive data on claims submitted to income support programs for the 2004-2005 fiscal year were received from the Government of Alberta. Based on the number of members provided in the AHW presentation "Consolidation of Government of Alberta Drug Benefit Programs" dated November 1, 2005, the distribution of prescribed drug costs per age-band were derived. Since Government of Alberta's data provided eligible claim as well as paid claim information, the cost sharing between the government and the insureds were derived. (See Table 3.4)

Details on prescribed drugs paid under the special drug programs were not received, except for the total amount paid in the 2004-2005 fiscal year. It was assumed that the special drug programs prescribed drug costs would be proportional to the sum of prescribed drug costs paid under the AHW and the income support programs. This proportion has been established to be 57.5%.

Based on the table on page 94 in the Canadian Institute for Health Information (CIHI) document titled "Drug Expenditure in Canada 1985 to 2004", the total prescribed drug costs incurred by uninsured persons and persons under private insurance were derived.

According to the AHW presentation "Consolidation of Government of Alberta Drug Benefit Programs" dated November 1, 2005, 27% of Albertans do not have supplemental coverage for community prescription drugs. The age and gender characteristics of these persons were determined based on Albertans that declared having no prescribed drug coverage in the Canadian Community Health Survey Cycle 2.1 (2003). It was assumed that, within each age-band and gender cell, these uninsured persons would use prescribed drugs at a rate close to the Alberta population average. (See Table 3.5)

The number of persons covered under private insurance was derived as the difference between the entire population of Alberta and the sum of the uninsured persons and the populations covered under AHW and income support programs. In addition, the prescribed drug costs incurred under private insurance were derived as the total prescribed drug expenditure projected by CIHI minus the prescribed drug costs incurred by the uninsured persons and the various government programs. In order to determine average costs per age-band, the statistical information of a representative selection of private sector data was used. (See Table 3.6)

Finally, non-prescribed drug projections were based on CIHI's projection for 2004. It was assumed that, within each age-band and gender cell, the non-prescribed drug cost would be proportionate to the cost of all prescribed drugs. (See Table 3.7)

Rates of Increase

Various sets of rates of increase were used:

- For prescribed drugs:

  For the baseline projection, a flat inflation rate equal to CPI + 12% per annum was used to project drug costs assuming that the inflation rates observed in the last few years would remain the same in the future. This rate was combined with incidence rates and demographic variations. The projections used a CPI equal to 3% per annum.

  For the revised baseline projection and the three insurance models, three different scales (Accelerated, Slow and Immediate), which include the impact of inflation, incidence rates and demographic variations were used. (See Table 3.8) The Accelerated scale was employed as a basis for the projections. The other scales were used for sensitivity analysis only. The Accelerated scale was modified when used with Low and High population projection.

- For non-prescribed drugs:

  A flat inflation rate equal to CPI + 2% per annum was utilized in order to project drug costs assuming that the inflation rates observed in the last few years would remain the same in the future. This rate was combined with incidence rates and demographic variations. The projections used a CPI equal to 3% per annum.

Projection Method

For projection purposes, it was assumed that the ratio of persons in each group (AHW, income support, Uninsured, Private) over the entire population of Alberta would remain the same as in year 2004, for each age-band and gender.

2004 costs were projected to 2006 based on a 15% per annum inflation rate (5% for non-prescribed drugs), combined with incidence rates and demographic variations. For prescribed drugs in the baseline projection, 2006 costs were projected to future years using the appropriate increase and incidence rates. For non-prescribed drugs, 2006 costs were projected to future years using the appropriate increase and incidence rates for all models.

Except as specified below, for each age-band/gender cell, the annual drug costs in a particular year are equal to:

- The average cost in year 2004 for this particular age-band/gender cell
- Augmented in order to take account of the cumulative rate of increase since 2004
- Times the incidence rate for this particular year
- Times the number of persons in the age-band/gender cell in this particular year.

For the revised baseline and the three insurance models and for year 2007 onwards, the total annual drug costs per group in a particular year are equal to:

- The total annual drug costs in the previous year
- Augmented by the rate of increase for the particular year, as defined in one of the three different scales (Accelerated, Slow, Immediate).

Calculation of Projected Values

For this paragraph, the following definitions will be used:

- Public fees – It was assumed that administration expenses of public drug programs are equal to 5% of paid claims.
- Private fees – To account for additional expenses inherent to private business, including but not limited to marketing, commissions, cost of capital and profit, a 5% charge on the cost that would be incurred in the public sector was added.
- Ratio 1 = Ratio of paid claims on eligible claims in AHW's non-group drug program – Based on the 2004-2005 fiscal year data, it was assumed that the ratio of paid claims on eligible claims in AHW's non-group drug program would be 81% in 2004, increasing by 0.5% per year until year 2012, and remaining at 85% after that date.

- Ratio 2 = Ratio of paid claims on eligible claims in private drug programs – It was assumed that the ratio of paid claims on eligible claims in private drug programs would be equal to 85%.

In the Baseline projection:

- "AHW" means the government's share in AHW programs, plus public fees
- "Income support" means the government's share in income support programs, plus public fees
- "Special programs" means the cost of special drug programs, plus public fees
- "Private" means:

  The insured's share in AHW programs; plus

  The insured's share in income support programs; plus

  The drug cost for the uninsured group; plus

  The drug cost for the private group times Ratio 2, plus private fees; plus

  The drug cost for the private group times (1 – Ratio 2), that is the insured's share

  The non prescribed drug cost.

In the mandatory public drug insurance projection:

- "Public (Current)" means:

  The government's share in AHW programs, plus public fees; plus

  The government's share in income support programs, plus public fees; plus

  The cost of special drug programs, plus public fees.

- "Public (Additional)" means:

  The drug cost for the uninsured group times Ratio 1, plus public fees; plus

  The drug cost for the private group times Ratio 1, plus public fees.

- "Public" means:

  Public (current); plus

  Public (additional).

- "Out-of-pocket" means:

  The insured's share in AHW programs; plus

  The insured's share in income support programs; plus

  The drug cost for the uninsured group times (1 - Ratio 1); plus

  The drug cost for the private group times (1 - Ratio 1); plus

  The non prescribed drug cost.

In the mandatory public drug insurance with private replacement coverage projection:

- "Public" means:

  The government's share in AHW programs, plus public fees; plus

The government's share in income support programs, plus public fees; plus

The cost of special drug programs, plus public fees; plus

The drug cost for the uninsured group times Ratio 1, plus public fees.

- "Public (to be funded)" means:

  The government's share in AHW programs, for seniors only, plus public fees; plus

  The government's share in income support programs, for seniors only, plus public fees; plus

  The cost of special drug programs, plus public fees.

- "Public (Pay-as-you-go)" means:

  Public; less

  Public (to be funded)

- "Private" means:

  The insured's share in AHW programs; plus

  The insured's share in income support programs; plus

  The drug cost for the uninsured group times (1 - Ratio 1); plus

  The drug cost for the private group times Ratio 2, plus private fees; plus

  The drug cost for the private group times (1 - Ratio 2); plus

  The non prescribed drug cost.

In the mandatory private drug insurance with public premium pooling projection:

- "Insurance companies" means:

  The government's share in AHW programs, plus private fees; plus

  The government's share in income support programs, plus private fees; plus

  The cost of special drug programs, plus private fees; plus

  The drug cost for the uninsured group times Ratio 1, plus private fees; plus

  The drug cost for the private group times Ratio 1, plus private fees.

- "Out-of-pocket" means:

  The insured's share in AHW programs; plus

  The insured's share in income support programs; plus

  The drug cost for the uninsured group times (1 - Ratio 1); plus

  The drug cost for the private group times (1 - Ratio 1); plus

  The non prescribed drug cost.

Continuing Care

Continuing care costs were projected using the Regional Continuing Care Model (RCCM) developed by Alberta Health and Wellness (AHW). The RCCM contains various scenarios related to the transfer of clients from facility-based to supportive living facilities. Scenario #2 was used, which is the basis of AHW analysis.

However some modifications were made to the assumptions used by AHW:

- The population based on projections was used.
- Parameters to account for obsolescence of facilities were added. Based on information provided by AHW, an obsolescence rate of 2.5% was used, indicating that each facility is built for a 40-year lifespan.
- The inflation rate was increased to 4%, in order to be consistent with the assumed income increase rate, since most of the operating and capital expenditure increases are related to income increases.
- Operating expenditures were added to account for the fact that the number of nursing hours provided to long-term care residents should increase from 3.1 to 3.4 hours per day, as recommended in the Report of the Auditor General on Seniors Care and Programs. Based on information provided by AHW, this additional cost will amount to $70 million in 2006. This amount was projected in future years according to the number of residents in long-term care facilities and to income increases.

Calculation of Projected Values

For this paragraph, the following definitions will be used:

- Public fees – It was assumed that administration expenses of public programs are already included in costs projected by the RCCM.
- Private fees – To account for additional expenses inherent to private business, including but not limited to marketing, commissions, cost of capital and profit, a 5% charge on the cost that would be incurred in the public sector was added. It was also assumed that private insurance companies would allow productivity gains equal to 1% of claim costs from year 2006 to year 2025. No productivity gains were assumed after year 2025.

In the baseline projection, the annual cost is as determined by the RCCM.

In the mandatory public health insurance projection, the annual cost is as determined by the RCCM.

In the mandatory public health insurance with private supplemental coverage projection:

- "Public" is the annual cost is as determined by the RCCM
- "Private" is equal to 10% of public.

In the mandatory private health insurance with public premium pooling projection:

- “Basic coverage” is the annual cost is as determined by the RCCM, plus the difference between private fees and public fees
- “Additional” is equal to 10% of basic coverage.

Non-Emergency Health

Overview

For non-emergency health, the development of projected costs proceeded as follows:

- Annual costs per capita were developed for each age and gender cell.
- Projection factors were computed to apply to the 2005 per capita costs to calculate projected per capita costs in each future year.
- Projected costs for each age and gender cell and in each future year were determined as the product of the relevant per capita cost and the projected population in that cell.
- Total projected costs in each future year were computed as the sum of projected costs over all age and gender cells.

Per Capita Costs

The analysis was based on claims data provided by Alberta Health and Wellness for each of the following broad sub-groups of benefits:

- Emergency room visits with a triage score of three or more.
- Hospitalizations resulting from the emergency room visits referred to above.
- Other hospitalizations, that is, hospitalizations that do not result from emergency room treatment.
- Treatment rendered at hospital ambulatory care centres.
- Treatment provided at a general practitioner’s or a specialist’s office.
- Physician’s services provided at a hospital ambulatory centre following emergency room treatment.
- Physician’s services rendered in connection with in-patient care or in a long-term care facility.
- Physicians’ fees in connection with diagnostic or therapeutic services.
- Community laboratory and other diagnostic fees.

The data was provided separately by benefit and sorted by regional health authority. The data items consisted of the following:

- Age;
- Gender;
- Number of individuals claiming;
- Total number of claims; and
- Total costs.

For each sub-benefit, costs were summed by age and gender cell across all regional health authorities. The total costs by age and gender were summed across all sub-benefits to determine total costs. Per capita costs were computed by dividing these costs by the population in that age and gender cell.

Projection Factors

Projection factors were developed for each benefit sub-group using the method outlined previously in this report. In brief summary, the factors were based on overall Canadian experience, adjusted for inflation and anticipated extra utilization in Alberta.

Projected Costs

The projection factors calculated above were multiplied by per capita costs to calculate projected per capita costs for each age and gender cell. These costs were multiplied by the projected population in each cell to generate total projected costs in each future year.

Federal Transfers

Federal transfers under the Canada Health Act are projected to grow ultimately at CPI plus 3%. This growth rate is lower than the ultimate inflation assumption embodied in the non-emergency health projections, which explains its decreasing significance over the full projection period. Table 2.7 in the Appendix displays the projected values of the transfer, allocated 95% to non-emergency health.

Supplemental Health

The analysis for supplemental health was similar to that for non-emergency health. The main difference was the data source. For supplemental health, data from a representative selection of private sector plans was used as the base since virtually all of the supplemental health benefits are privately insured.

The base analysis produced per capita costs whose effect by sub-benefit was compared to actual 2004 costs obtained from the Canadian Institute for Health Information. Based on this comparison, per capita costs by sub-benefit were adjusted so that totals by sub-benefit were a better fit with the CIHI data. These adjusted per capita costs were projected forward as summarized previously in this report. Projected total costs were calculated for each future year by applying the projected per capita costs by age and gender to the projected population.

Actuarial Methodology Appendix

This document contains advice, proposals, recommendations, analyses or policy options developed for the Minister of Alberta Health and Wellness, and/or department of Alberta Health and Wellness.

Table 1.1: Low Projections September 2004

Series 1	2003 Estimates			2004			2005			2006			2007			2008		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	101,650	96,245	197,895	102,735	97,430	200,165	103,795	98,310	202,105	105,125	99,200	204,325	104,835	98,900	203,735	104,425	98,525	202,950
5-9	107,320	100,725	208,045	106,710	100,215	206,925	105,680	99,430	205,110	104,120	98,370	202,490	104,460	99,105	203,565	105,245	99,590	204,835
10-14	115,990	110,125	226,115	115,290	109,080	224,370	113,840	107,660	221,500	112,870	106,530	219,400	111,385	104,580	215,965	109,910	103,220	213,130
15-19	118,115	111,475	229,590	118,335	112,085	230,420	118,815	112,840	231,655	118,500	112,690	231,190	118,375	112,595	230,970	117,935	112,160	230,095
20-24	122,025	115,715	237,740	122,615	116,700	239,315	122,885	116,755	239,640	122,785	116,675	239,460	122,295	116,155	238,450	121,245	115,260	236,505
25-29	123,800	114,295	238,095	126,095	116,475	242,570	127,035	118,300	245,335	127,285	119,520	246,805	127,050	120,325	247,375	126,920	121,200	248,120
30-34	123,130	115,235	238,365	124,520	116,400	240,920	125,610	117,250	242,860	126,120	117,810	243,930	127,260	118,680	245,940	128,450	119,335	247,785
35-39	126,820	120,880	247,700	123,835	117,915	241,750	123,040	116,510	239,550	124,475	117,295	241,770	125,605	117,880	243,485	126,280	118,680	244,960
40-44	141,940	136,955	278,895	142,060	137,060	279,120	140,230	135,410	275,640	136,620	131,460	268,080	132,640	127,185	259,825	128,595	122,660	251,255
45-49	131,170	125,560	256,730	135,080	129,065	264,145	138,110	132,140	270,250	140,565	134,540	275,105	141,565	136,345	277,910	142,250	137,535	279,785
50-54	103,300	100,410	203,710	108,615	105,440	214,055	114,210	110,625	224,835	119,840	116,085	235,925	125,475	121,045	246,520	130,055	125,195	255,250
55-59	80,760	79,710	160,470	85,450	84,470	169,920	90,585	89,420	180,005	95,215	93,750	188,965	97,690	96,100	193,790	101,230	99,425	200,655
60-64	58,605	58,490	117,095	61,565	61,380	122,945	64,435	64,185	128,620	67,510	67,410	134,920	73,020	73,120	146,140	77,915	78,110	156,025
65-69	47,020	48,585	95,605	47,905	49,625	97,530	48,970	50,675	99,645	50,490	52,165	102,655	52,410	54,030	106,440	54,985	56,525	111,510
70-74	40,095	43,600	83,695	40,585	43,930	84,515	40,800	44,160	84,960	40,995	44,530	85,525	41,270	44,880	86,150	41,715	45,475	87,190
75-79	28,475	36,010	64,485	29,400	36,490	65,890	30,515	37,210	67,725	31,425	37,920	69,345	32,065	38,430	70,495	32,540	38,820	71,360
80-84	17,475	27,415	44,890	18,060	28,250	46,310	18,460	28,555	47,015	18,900	28,915	47,815	19,380	28,960	48,340	20,025	29,330	49,355
85-89	7,735	15,420	23,155	7,875	15,670	23,545	8,205	16,405	24,610	8,675	17,125	25,800	9,165	18,050	27,215	9,505	18,710	28,215
90+	3,035	8,085	11,120	3,070	8,225	11,295	3,105	8,250	11,355	3,090	8,220	11,310	3,080	8,225	11,305	3,105	8,210	11,315
TOTAL	1,598,460	1,564,935	3,163,395	1,619,800	1,585,905	3,205,705	1,638,325	1,604,110	3,242,435	1,654,605	1,620,210	3,274,815	1,669,025	1,634,590	3,303,615	1,682,330	1,647,965	3,330,295

Alberta Finance, Statistics

Series 1	2009			2010			2011			2012			2013			2014		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	103,945	98,065	202,010	103,365	97,510	200,875	102,670	96,855	199,525	101,815	96,045	197,860	101,085	95,375	196,460	100,475	94,780	195,255
5-9	105,570	100,075	205,645	106,080	100,445	206,525	106,995	100,955	207,950	106,390	100,385	206,775	105,780	99,805	205,585	105,135	99,210	204,345
10-14	108,765	102,185	210,950	107,335	101,040	208,375	105,475	99,700	205,175	105,620	100,235	205,855	106,255	100,580	206,835	106,460	100,960	207,420
15-19	116,820	110,715	227,535	115,060	108,965	224,025	113,845	107,625	221,470	112,200	105,500	217,700	110,600	104,010	214,610	109,390	102,885	212,275
20-24	120,750	115,110	235,860	120,685	115,310	235,995	119,965	114,725	234,690	119,550	114,320	233,870	118,895	113,670	232,565	117,635	112,060	229,695
25-29	126,415	121,075	247,490	125,880	120,315	246,195	125,215	119,630	244,845	124,300	118,665	242,965	122,920	117,460	240,380	122,215	117,075	239,290
30-34	129,675	120,475	250,150	129,840	121,525	251,365	129,530	122,175	251,705	128,870	122,585	251,455	128,435	123,135	251,570	127,715	122,790	250,505
35-39	126,870	119,080	245,950	127,370	119,360	246,730	127,440	119,490	246,930	128,275	120,085	248,360	129,235	120,530	249,765	130,280	121,505	251,785
40-44	125,085	119,245	244,330	123,875	117,500	241,375	124,995	118,010	243,005	125,905	118,420	244,325	126,395	119,070	245,465	126,865	119,385	246,250
45-49	141,970	137,330	279,300	139,880	135,450	275,330	136,100	131,350	267,450	132,025	126,995	259,020	127,920	122,400	250,320	124,375	118,945	243,320
50-54	133,665	128,445	262,110	136,465	131,330	267,795	138,725	133,570	272,295	139,650	135,270	274,920	140,250	136,365	276,615	139,910	136,120	276,030
55-59	106,240	104,200	210,440	111,575	109,135	220,710	116,950	114,405	231,355	122,355	119,185	241,540	126,750	123,205	249,955	130,220	126,345	256,565
60-64	82,225	82,585	164,810	87,015	87,285	174,300	91,315	91,420	182,735	93,625	93,625	187,250	96,965	96,850	193,815	101,715	101,440	203,155
65-69	57,605	59,160	116,765	60,155	61,740	121,895	62,930	64,770	127,700	68,020	70,205	138,225	72,520	74,945	147,465	76,480	79,185	155,665
70-74	42,415	46,340	88,755	43,310	47,275	90,585	44,630	48,595	93,225	46,315	50,305	96,620	48,560	52,605	101,165	50,850	55,025	105,875
75-79	32,890	39,045	71,935	33,040	39,235	72,275	33,180	39,535	72,715	33,395	39,815	73,210	33,750	40,330	74,080	34,310	41,085	75,395
80-84	20,635	29,695	50,330	21,410	30,270	51,680	22,040	30,845	52,885	22,465	31,230	53,695	22,775	31,520	54,295	22,990	31,670	54,660
85-89	9,775	19,215	28,990	9,995	19,385	29,380	10,245	19,630	29,875	10,515	19,665	30,180	10,860	19,925	30,785	11,200	20,170	31,370
90+	3,130	8,360	11,490	3,255	8,660	11,915	3,310	8,690	12,000	3,345	8,840	12,185	3,330	8,755	12,085	3,335	8,770	12,105
TOTAL	1,694,445	1,660,400	3,354,845	1,705,590	1,671,735	3,377,325	1,715,555	1,681,975	3,397,530	1,724,635	1,691,375	3,416,010	1,733,280	1,700,535	3,433,815	1,741,555	1,709,405	3,450,960

Alberta Finance, Statistics

Series 1	2015			2016			2017			2018			2019			2020		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	99,935	94,275	194,210	99,495	93,860	193,355	99,105	93,515	192,620	98,620	93,015	191,635	98,000	92,445	190,445	97,330	91,820	189,150
5-9	104,460	98,570	203,030	103,725	97,875	201,600	102,875	97,075	199,950	102,145	96,385	198,530	101,540	95,805	197,345	101,000	95,305	196,305
10-14	106,900	101,265	208,165	107,775	101,745	209,520	107,185	101,185	208,370	106,560	100,600	207,160	105,910	99,990	205,900	105,255	99,365	204,620
15-19	107,905	101,695	209,600	106,030	100,345	206,375	106,160	100,880	207,040	106,800	101,235	208,035	107,015	101,605	208,620	107,440	101,910	209,350
20-24	115,810	110,245	226,055	114,575	108,870	223,445	112,950	106,750	219,700	111,345	105,265	216,610	110,130	104,160	214,290	108,660	102,950	211,610
25-29	122,015	117,130	239,145	121,270	116,500	237,770	120,830	116,100	236,930	120,180	115,440	235,620	118,945	113,830	232,775	117,140	112,020	229,160
30-34	127,065	121,890	248,955	126,330	121,165	247,495	125,420	120,200	245,620	124,060	119,000	243,060	123,330	118,615	241,945	123,145	118,690	241,835
35-39	130,340	122,430	252,770	129,990	123,045	253,035	129,340	123,430	252,770	128,915	123,990	252,905	128,210	123,645	251,855	127,540	122,745	250,285
40-44	127,310	119,600	246,910	127,340	119,710	247,050	128,175	120,280	248,455	129,120	120,725	249,845	130,155	121,700	251,855	130,230	122,615	252,845
45-49	123,125	117,160	240,285	124,225	117,670	241,895	125,105	118,070	243,175	125,590	118,730	244,320	126,060	119,025	245,085	126,495	119,225	245,720
50-54	137,835	134,230	272,065	134,100	130,140	264,240	130,080	125,845	255,925	126,045	121,315	247,360	122,570	117,910	240,480	121,360	116,160	237,520
55-59	132,920	129,145	262,065	135,120	131,320	266,440	135,990	132,990	268,980	136,560	134,070	270,630	136,240	133,815	270,055	134,205	131,960	266,165
60-64	106,795	106,210	213,005	111,925	111,325	223,250	117,070	115,985	233,055	121,260	119,860	241,120	124,565	122,910	247,475	127,155	125,635	252,790
65-69	80,855	83,640	164,495	84,800	87,570	172,370	86,960	89,695	176,655	90,070	92,770	182,840	94,495	97,185	191,680	99,195	101,755	200,950
70-74	53,070	57,435	110,505	55,515	60,225	115,740	60,020	65,285	125,305	64,005	69,705	133,710	67,480	73,640	141,120	71,305	77,730	149,035
75-79	35,050	41,885	76,935	36,135	43,105	79,240	37,505	44,595	82,100	39,345	46,645	85,990	41,190	48,775	89,965	42,990	50,895	93,885
80-84	23,090	31,830	54,920	23,215	32,085	55,300	23,355	32,310	55,665	23,605	32,735	56,340	24,010	33,345	57,355	24,540	34,000	58,540
85-89	11,620	20,550	32,170	11,960	20,960	32,920	12,165	21,210	33,375	12,325	21,390	33,715	12,420	21,460	33,880	12,485	21,585	34,070
90+	3,375	8,805	12,180	3,450	8,860	12,310	3,455	8,835	12,290	3,515	8,915	12,430	3,525	8,940	12,465	3,605	9,060	12,665
TOTAL	1,749,475	1,717,990	3,467,465	1,756,975	1,726,375	3,483,350	1,763,745	1,734,235	3,497,980	1,770,065	1,741,790	3,511,855	1,775,790	1,748,800	3,524,590	1,781,075	1,755,425	3,536,500

Alberta Finance, Statistics

Series 1	2021			2022			2023			2024			2025			2026		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	96,590	91,120	187,710	95,850	90,405	186,255	95,090	89,715	184,805	94,350	88,995	183,345	93,630	88,315	181,945	92,925	87,665	180,590
5-9	100,555	94,880	195,435	100,175	94,505	194,680	99,675	94,040	193,715	99,075	93,480	192,555	98,395	92,835	191,230	97,645	92,140	189,785
10-14	104,510	98,655	203,165	103,670	97,875	201,545	102,955	97,175	200,130	102,310	96,580	198,890	101,790	96,090	197,880	101,340	95,655	196,995
15-19	108,335	102,375	210,710	107,730	101,815	209,545	107,115	101,240	208,355	106,480	100,645	207,125	105,795	100,000	205,795	105,070	99,305	204,375
20-24	106,790	101,615	208,405	106,935	102,150	209,085	107,575	102,490	210,065	107,790	102,860	210,650	108,195	103,165	211,360	109,085	103,645	212,730
25-29	115,875	110,635	226,510	114,270	108,520	222,790	112,680	107,035	219,715	111,485	105,930	217,415	110,030	104,750	214,780	108,145	103,415	211,560
30-34	122,380	118,045	240,425	121,955	117,640	239,595	121,330	116,985	238,315	120,085	115,390	235,475	118,280	113,565	231,845	117,050	112,195	229,245
35-39	126,810	122,030	248,840	125,895	121,065	246,960	124,560	119,850	244,410	123,845	119,490	243,335	123,655	119,535	243,190	122,905	118,905	241,810
40-44	129,855	123,230	253,085	129,225	123,635	252,860	128,800	124,185	252,985	128,090	123,825	251,915	127,415	122,945	250,360	126,695	122,215	248,910
45-49	126,520	119,375	245,895	127,355	119,945	247,300	128,270	120,365	248,635	129,320	121,335	250,655	129,370	122,255	251,625	129,005	122,835	251,840
50-54	122,435	116,655	239,090	123,310	117,060	240,370	123,780	117,705	241,485	124,240	117,990	242,230	124,665	118,200	242,865	124,690	118,325	243,015
55-59	130,580	127,955	258,535	126,665	123,715	250,380	122,760	119,275	242,035	119,385	115,945	235,330	118,235	114,245	232,480	119,290	114,735	234,025
60-64	129,225	127,745	256,970	130,050	129,355	259,405	130,575	130,410	260,985	130,285	130,160	260,445	128,330	128,335	256,665	124,840	124,435	249,275
65-69	103,940	106,630	210,570	108,690	111,040	219,730	112,570	114,775	227,345	115,605	117,660	233,265	117,975	120,260	238,235	119,900	122,285	242,185
70-74	74,740	81,340	156,080	76,655	83,325	159,980	79,415	86,200	165,615	83,310	90,295	173,605	87,485	94,535	182,020	91,645	99,055	190,700
75-79	44,945	53,370	98,315	48,675	57,900	106,575	51,940	61,825	113,765	54,720	65,270	119,990	57,745	68,865	126,610	60,460	72,025	132,485
80-84	25,320	35,005	60,325	26,280	36,230	62,510	27,595	37,905	65,500	28,900	39,640	68,540	30,140	41,330	71,470	31,535	43,365	74,900
85-89	12,545	21,785	34,330	12,625	21,930	34,555	12,760	22,235	34,995	12,990	22,635	35,625	13,285	23,080	36,365	13,730	23,825	37,555
90+	3,620	9,120	12,740	3,590	9,035	12,625	3,625	9,055	12,680	3,620	9,050	12,670	3,625	9,125	12,750	3,655	9,220	12,875
TOTAL	1,785,570	1,761,565	3,547,135	1,789,600	1,767,145	3,556,745	1,793,070	1,772,465	3,565,535	1,795,885	1,777,175	3,573,060	1,798,040	1,781,430	3,579,470	1,799,610	1,785,245	3,584,855

Alberta Finance, Statistics

Table 1.2: Medium Projections September 2004

Series 2	2003 Estimates			2004			2005			2006			2007			2008		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	102,055	96,615	198,670	103,910	98,525	202,435	106,035	100,425	206,460	108,730	102,585	211,315	110,055	103,840	213,895	111,425	105,125	216,550
5-9	107,495	100,900	208,395	107,215	100,660	207,875	106,605	100,270	206,875	105,530	99,670	205,200	106,390	100,855	207,245	107,980	102,070	210,050
10-14	116,120	110,245	226,365	115,610	109,405	225,015	114,450	108,225	222,675	113,760	107,425	221,185	112,685	105,815	218,500	111,660	104,875	216,535
15-19	118,255	111,620	229,875	118,715	112,440	231,155	119,460	113,470	232,930	119,435	113,610	233,045	119,595	113,820	233,415	119,490	113,710	233,200
20-24	122,290	115,995	238,285	123,305	117,145	240,750	124,075	118,040	242,115	124,505	118,520	243,025	124,510	118,500	243,010	123,970	118,150	242,120
25-29	124,120	114,590	238,710	126,915	117,300	244,215	128,525	119,770	248,295	129,485	121,725	251,210	130,005	123,300	253,305	130,720	125,030	255,750
30-34	123,385	115,515	238,900	125,215	117,120	242,335	126,890	118,520	245,410	128,040	119,760	247,800	129,925	121,380	251,305	131,965	122,865	254,830
35-39	127,000	121,045	248,045	124,335	118,345	242,680	123,945	117,320	241,265	125,890	118,560	244,450	127,555	119,680	247,235	128,870	121,115	249,985
40-44	142,070	137,050	279,120	142,405	137,365	279,770	140,890	135,975	276,865	137,650	132,310	269,960	134,050	128,370	262,420	130,480	124,235	254,715
45-49	131,265	125,630	256,895	135,305	129,250	264,555	138,535	132,500	271,035	141,235	135,090	276,325	142,515	137,130	279,645	143,525	138,580	282,105
50-54	103,350	100,465	203,815	108,750	105,605	214,355	114,480	110,910	225,390	120,250	116,535	236,785	126,050	121,630	247,680	130,825	125,985	256,810
55-59	80,795	79,745	160,540	85,565	84,575	170,140	90,765	89,630	180,395	95,520	94,065	189,585	98,110	96,560	194,670	101,770	100,040	201,810
60-64	58,650	58,520	117,170	61,700	61,465	123,165	64,655	64,355	129,010	67,830	67,675	135,505	73,455	73,475	146,930	78,465	78,580	157,045
65-69	47,050	48,620	95,670	47,985	49,700	97,685	49,130	50,830	99,960	50,730	52,375	103,105	52,760	54,340	107,100	55,440	56,930	112,370
70-74	40,115	43,610	83,725	40,615	43,970	84,585	40,865	44,265	85,130	41,115	44,660	85,775	41,420	45,075	86,495	41,925	45,740	87,665
75-79	28,485	36,025	64,510	29,425	36,520	65,945	30,550	37,260	67,810	31,480	38,005	69,485	32,130	38,570	70,700	32,650	38,985	71,635
80-84	17,475	27,430	44,905	18,070	28,270	46,340	18,480	28,580	47,060	18,940	28,960	47,900	19,410	29,040	48,450	20,065	29,435	49,500
85-89	7,735	15,425	23,160	7,875	15,675	23,550	8,210	16,420	24,630	8,680	17,145	25,825	9,170	18,085	27,255	9,520	18,765	28,285
90+	3,035	8,085	11,120	3,070	8,230	11,300	3,105	8,255	11,360	3,095	8,220	11,315	3,080	8,235	11,315	3,105	8,220	11,325
TOTAL	1,600,745	1,567,130	3,167,875	1,625,985	1,591,865	3,217,850	1,649,650	1,615,020	3,264,670	1,671,900	1,636,895	3,308,795	1,692,880	1,657,700	3,350,580	1,713,850	1,678,435	3,392,285

Alberta Finance, Statistics

Series 1	2009			2010			2011			2012			2013			2014		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	112,790	106,415	219,205	114,125	107,685	221,810	115,375	108,860	224,235	116,505	109,925	226,430	117,545	110,895	228,440	118,405	111,720	230,125
5-9	109,380	103,590	212,970	111,205	105,215	216,420	113,775	107,255	221,030	115,095	108,495	223,590	116,465	109,780	226,245	117,810	111,075	228,885
10-14	111,050	104,340	215,390	110,225	103,755	213,980	109,030	103,040	212,070	109,900	104,255	214,155	111,490	105,480	216,970	112,880	106,965	219,845
15-19	118,750	112,635	231,385	117,445	111,320	228,765	116,705	110,450	227,155	115,630	108,840	224,470	114,585	107,905	222,490	114,005	107,370	221,375
20-24	124,020	118,575	242,595	124,535	119,360	243,895	124,405	119,375	243,780	124,560	119,590	244,150	124,460	119,480	243,940	123,730	118,420	242,150
25-29	131,085	125,815	256,900	131,470	126,020	257,490	131,705	126,295	258,000	131,710	126,290	258,000	131,180	125,935	257,115	131,240	126,345	257,585
30-34	134,145	124,950	259,095	135,315	127,025	262,340	136,105	128,790	264,895	136,605	130,365	266,970	137,300	132,075	269,375	137,690	132,870	270,560
35-39	130,230	122,280	252,510	131,565	123,380	254,945	132,595	124,470	257,065	134,450	126,065	260,515	136,475	127,555	264,030	138,635	129,635	268,270
40-44	127,510	121,275	248,785	126,915	120,070	246,985	128,725	121,220	249,945	130,385	122,350	252,735	131,695	123,765	255,460	133,025	124,905	257,930
45-49	143,625	138,675	282,300	141,970	137,165	279,135	138,675	133,475	272,150	135,130	129,550	264,680	131,610	125,460	257,070	128,675	122,525	251,200
50-54	134,675	129,425	264,100	137,745	132,560	270,305	140,350	135,080	275,430	141,615	137,080	278,695	142,600	138,530	281,130	142,685	138,635	281,320
55-59	106,935	104,980	211,915	112,445	110,100	222,545	118,015	115,595	233,610	123,660	120,595	244,255	128,305	124,845	253,150	132,015	128,225	260,240
60-64	82,910	83,195	166,105	87,825	88,020	175,845	92,290	92,320	184,610	94,785	94,730	189,515	98,280	98,125	196,405	103,225	102,920	206,145
65-69	58,185	59,665	117,850	60,875	62,395	123,270	63,775	65,540	129,315	69,020	71,095	140,115	73,670	75,980	149,650	77,785	80,375	158,160
70-74	42,690	46,695	89,385	43,670	47,710	91,380	45,095	49,155	94,250	46,885	50,960	97,845	49,260	53,370	102,630	51,655	55,915	107,570
75-79	33,015	39,260	72,275	33,195	39,495	72,690	33,410	39,855	73,265	33,665	40,215	73,880	34,060	40,815	74,875	34,700	41,645	76,345
80-84	20,710	29,810	50,520	21,480	30,420	51,900	22,125	31,030	53,155	22,575	31,455	54,030	22,910	31,785	54,695	23,135	31,980	55,115
85-89	9,785	19,265	29,050	10,015	19,475	29,490	10,275	19,725	30,000	10,550	19,785	30,335	10,905	20,055	30,960	11,250	20,325	31,575
90+	3,135	8,365	11,500	3,260	8,675	11,935	3,310	8,705	12,015	3,345	8,855	12,200	3,330	8,770	12,100	3,340	8,785	12,125
TOTAL	1,734,625	1,699,210	3,433,835	1,755,280	1,719,845	3,475,125	1,775,740	1,740,235	3,515,975	1,796,070	1,760,495	3,556,565	1,816,125	1,780,605	3,596,730	1,835,885	1,800,635	3,636,520

Alberta Finance, Statistics

Series 1	2015			2016			2017			2018			2019			2020		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	119,150	112,410	231,560	119,690	112,945	232,635	120,060	113,285	233,345	120,280	113,470	233,750	120,335	113,540	233,875	120,280	113,470	233,750
5-9	119,145	112,325	231,470	120,405	113,510	233,915	121,540	114,570	236,110	122,550	115,540	238,090	123,455	116,370	239,825	124,160	117,055	241,215
10-14	114,705	108,595	223,300	117,270	110,630	227,900	118,595	111,875	230,470	119,940	113,140	233,080	121,310	114,430	235,740	122,655	115,715	238,370
15-19	113,170	106,780	219,950	111,980	106,060	218,040	112,860	107,295	220,155	114,440	108,485	222,925	115,835	109,995	225,830	117,660	111,625	229,285
20-24	122,425	117,095	239,520	121,700	116,220	237,920	120,615	114,635	235,250	119,590	113,680	233,270	118,995	113,160	232,155	118,165	112,575	230,740
25-29	131,740	127,130	258,870	131,605	127,160	258,765	131,780	127,355	259,135	131,665	127,255	258,920	130,955	126,180	257,135	129,665	124,885	254,550
30-34	138,065	133,055	271,120	138,300	133,340	271,640	138,305	133,330	271,635	137,780	132,990	270,770	137,835	133,410	271,245	138,330	134,180	272,510
35-39	139,810	131,705	271,515	140,585	133,450	274,035	141,085	135,025	276,110	141,760	136,750	278,510	142,145	137,540	279,685	142,525	137,710	280,235
40-44	134,380	126,005	260,385	135,375	127,100	262,475	137,225	128,690	265,915	139,240	130,165	269,405	141,365	132,230	273,595	142,540	134,295	276,835
45-49	128,080	121,345	249,425	129,870	122,485	252,355	131,520	123,595	255,115	132,795	125,010	257,805	134,120	126,135	260,255	135,470	127,235	262,705
50-54	141,075	137,130	278,205	137,835	133,450	271,285	134,335	129,595	263,930	130,870	125,550	256,420	127,995	122,645	250,640	127,430	121,475	248,905
55-59	135,025	131,295	266,320	137,530	133,760	271,290	138,745	135,735	274,480	139,705	137,130	276,835	139,800	137,235	277,035	138,210	135,745	273,955
60-64	108,480	107,905	216,385	113,810	113,220	227,030	119,165	118,075	237,240	123,595	122,215	245,810	127,140	125,480	252,620	129,990	128,460	258,450
65-69	82,315	84,985	167,300	86,425	89,075	175,500	88,740	91,390	180,130	92,005	94,620	186,625	96,580	99,225	195,805	101,470	104,000	205,470
70-74	54,030	58,435	112,465	56,600	61,350	117,950	61,250	66,540	127,790	65,365	71,085	136,450	68,975	75,150	144,125	72,940	79,395	152,335
75-79	35,490	42,555	78,045	36,665	43,840	80,505	38,110	45,430	83,540	40,075	47,575	87,650	42,020	49,835	91,855	43,920	52,045	95,965
80-84	23,280	32,185	55,465	23,445	32,495	55,940	23,620	32,785	56,405	23,905	33,280	57,185	24,365	33,955	58,320	24,925	34,675	59,600
85-89	11,680	20,740	32,420	12,025	21,160	33,185	12,245	21,440	33,685	12,405	21,640	34,045	12,525	21,770	34,295	12,605	21,900	34,505
90+	3,380	8,830	12,210	3,455	8,880	12,335	3,465	8,860	12,325	3,525	8,955	12,480	3,540	8,970	12,510	3,615	9,100	12,715
TOTAL	1,855,425	1,820,505	3,675,930	1,874,570	1,840,130	3,714,700	1,893,260	1,859,505	3,752,765	1,911,490	1,878,535	3,790,025	1,929,290	1,897,255	3,826,545	1,946,555	1,915,540	3,862,095

Alberta Finance, Statistics

Series 1	2021			2022			2023			2024			2025			2026		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	120,115	113,340	233,455	119,965	113,180	233,145	119,775	113,000	232,775	119,580	112,815	232,395	119,415	112,665	232,080	119,310	112,560	231,870
5-9	124,725	117,565	242,290	125,080	117,930	243,010	125,300	118,130	243,430	125,355	118,160	243,515	125,295	118,115	243,410	125,155	117,985	243,140
10-14	123,905	116,895	240,800	125,045	117,955	243,000	126,050	118,905	244,955	126,930	119,740	246,670	127,635	120,435	248,070	128,210	120,950	249,160
15-19	120,215	113,665	233,880	121,525	114,890	236,415	122,885	116,185	239,070	124,235	117,455	241,690	125,580	118,700	244,280	126,815	119,910	246,725
20-24	117,000	111,865	228,865	117,865	113,070	230,935	119,425	114,280	233,705	120,815	115,770	236,585	122,630	117,390	240,020	125,170	119,415	244,585
25-29	128,930	124,005	252,935	127,850	122,410	250,260	126,830	121,475	248,305	126,230	120,945	247,175	125,425	120,365	245,790	124,235	119,655	243,890
30-34	138,200	134,195	272,395	138,370	134,405	272,775	138,270	134,305	272,575	137,545	133,240	270,785	136,255	131,930	268,185	135,530	131,070	266,600
35-39	142,770	138,000	280,770	142,770	137,975	280,745	142,260	137,635	279,895	142,285	138,050	280,335	142,795	138,830	281,625	142,670	138,855	281,525
40-44	143,315	136,045	279,360	143,810	137,590	281,400	144,485	139,305	283,790	144,860	140,080	284,940	145,225	140,275	285,500	145,470	140,565	286,035
45-49	136,460	128,305	264,765	138,295	129,905	268,200	140,260	131,360	271,620	142,375	133,410	275,785	143,525	135,460	278,985	144,290	137,185	281,475
50-54	129,210	122,600	251,810	130,825	123,715	254,540	132,070	125,115	257,185	133,370	126,230	259,600	134,695	127,320	262,015	135,665	128,380	264,045
55-59	135,055	132,155	267,210	131,640	128,365	260,005	128,295	124,375	252,670	125,520	121,560	247,080	124,975	120,430	245,405	126,710	121,530	248,240
60-64	132,390	130,860	263,250	133,550	132,735	266,285	134,460	134,120	268,580	134,520	134,215	268,735	132,995	132,775	265,770	129,970	129,250	259,220
65-69	106,400	109,065	215,465	111,350	113,715	225,065	115,435	117,635	233,070	118,705	120,770	239,475	121,340	123,610	244,950	123,535	125,895	249,430
70-74	76,495	83,160	159,655	78,540	85,310	163,850	81,445	88,350	169,795	85,520	92,615	178,135	89,820	97,040	186,860	94,145	101,755	195,900
75-79	46,005	54,640	100,645	49,830	59,260	109,090	53,195	63,310	116,505	56,085	66,875	122,960	59,230	70,600	129,830	62,055	73,885	135,940
80-84	25,770	35,770	61,540	26,795	37,060	63,855	28,185	38,815	67,000	29,565	40,635	70,200	30,870	42,415	73,285	32,330	44,535	76,865
85-89	12,690	22,140	34,830	12,795	22,330	35,125	12,955	22,670	35,625	13,195	23,125	36,320	13,520	23,620	37,140	13,990	24,405	38,395
90+	3,630	9,165	12,795	3,610	9,075	12,685	3,630	9,105	12,735	3,630	9,095	12,725	3,645	9,185	12,830	3,675	9,290	12,965
TOTAL	1,963,280	1,933,435	3,896,715	1,979,510	1,950,875	3,930,385	1,995,210	1,968,075	3,963,285	2,010,320	1,984,785	3,995,105	2,024,870	2,001,160	4,026,030	2,038,930	2,017,075	4,056,005

Alberta Finance, Statistics

Table 1.3: High Projections September 2004

Series 2	2003 Estimates			2004			2005			2006			2007			2008		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	102,520	97,055	199,575	105,335	99,870	205,205	108,865	103,100	211,965	113,485	107,085	220,570	117,205	110,595	227,800	121,145	114,310	235,455
5-9	107,765	101,140	208,905	107,995	101,365	209,360	108,165	101,670	209,835	108,095	102,005	210,100	110,260	104,385	214,645	113,325	106,960	220,285
10-14	116,260	110,390	226,650	116,085	109,875	225,960	115,405	109,190	224,595	115,430	109,030	224,460	115,195	108,265	223,460	115,115	108,210	223,325
15-19	118,450	111,815	230,265	119,270	113,020	232,290	120,530	114,560	235,090	121,145	115,305	236,450	122,065	116,265	238,330	122,695	116,885	239,580
20-24	122,670	116,400	239,070	124,385	118,580	242,965	126,110	120,220	246,330	127,710	121,945	249,655	129,050	123,345	252,395	129,680	124,235	253,915
25-29	124,555	115,020	239,575	128,200	118,550	246,750	131,015	122,230	253,245	133,565	125,765	259,330	135,950	129,260	265,210	138,480	132,860	271,340
30-34	123,725	115,865	239,590	126,265	118,190	244,455	129,000	120,675	249,675	131,580	123,345	254,925	135,200	126,715	261,915	139,075	130,015	269,090
35-39	127,245	121,260	248,505	125,090	119,005	244,095	125,475	118,660	244,135	128,410	120,845	249,255	131,395	123,200	254,595	134,105	126,000	260,105
40-44	142,240	137,215	279,455	142,965	137,830	280,795	142,000	136,885	278,885	139,495	133,840	273,335	136,835	130,685	267,520	134,275	127,370	261,645
45-49	131,370	125,730	257,100	135,650	129,530	265,180	139,240	133,070	272,310	142,425	136,065	278,490	144,355	138,635	282,990	146,045	140,660	286,705
50-54	103,415	100,550	203,965	108,970	105,855	214,825	114,905	111,385	226,290	121,000	117,330	238,330	127,185	122,820	250,005	132,390	127,555	259,945
55-59	80,845	79,795	160,640	85,715	84,755	170,470	91,120	89,980	181,100	96,065	94,670	190,735	98,945	97,450	196,395	102,870	101,260	204,130
60-64	58,710	58,570	117,280	61,880	61,630	123,510	65,025	64,660	129,685	68,435	68,160	136,595	74,325	74,200	148,525	79,590	79,550	159,140
65-69	47,090	48,665	95,755	48,110	49,825	97,935	49,380	51,070	100,450	51,155	52,805	103,960	53,400	54,950	108,350	56,340	57,755	114,095
70-74	40,130	43,630	83,760	40,660	44,050	84,710	40,970	44,420	85,390	41,300	44,920	86,220	41,710	45,470	87,180	42,345	46,280	88,625
75-79	28,495	36,050	64,545	29,460	36,570	66,030	30,610	37,375	67,985	31,580	38,175	69,755	32,280	38,810	71,090	32,840	39,320	72,160
80-84	17,480	27,440	44,920	18,075	28,290	46,365	18,500	28,625	47,125	18,975	29,055	48,030	19,475	29,165	48,640	20,145	29,625	49,770
85-89	7,735	15,430	23,165	7,880	15,690	23,570	8,215	16,460	24,675	8,695	17,205	25,900	9,190	18,160	27,350	9,545	18,850	28,395
90+	3,035	8,085	11,120	3,070	8,230	11,300	3,105	8,255	11,360	3,100	8,230	11,330	3,085	8,240	11,325	3,110	8,240	11,350
TOTAL	1,603,735	1,570,105	3,173,840	1,635,060	1,600,710	3,235,770	1,667,635	1,632,490	3,300,125	1,701,645	1,665,780	3,367,425	1,737,105	1,700,615	3,437,720	1,773,115	1,735,940	3,509,055

Alberta Finance, Statistics

Series 1	2009			2010			2011			2012			2013			2014		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	125,215	118,150	243,365	129,410	122,125	251,535	133,645	126,100	259,745	137,865	130,085	267,950	141,665	133,670	275,335	145,035	136,855	281,890
5-9	116,410	110,030	226,440	120,175	113,470	233,645	124,860	117,545	242,405	128,590	121,070	249,660	132,505	124,765	257,270	136,575	128,590	265,165
10-14	115,580	108,650	224,230	115,905	109,085	224,990	115,910	109,500	225,410	118,085	111,875	229,960	121,140	114,470	235,610	124,230	117,540	241,770
15-19	122,675	116,520	239,195	122,110	115,950	238,060	122,180	115,840	238,020	121,960	115,070	237,030	121,875	115,020	236,895	122,330	115,465	237,795
20-24	130,780	125,710	256,490	132,210	127,420	259,630	132,900	128,260	261,160	133,805	129,215	263,020	134,420	129,845	264,265	134,430	129,475	263,905
25-29	140,595	135,455	276,050	142,605	137,395	280,000	144,335	139,265	283,600	145,660	140,660	28[illegible],320	146,315	141,545	287,860	147,390	143,035	290,425
30-34	143,115	133,955	277,070	146,215	137,920	284,135	148,885	141,590	290,475	151,270	145,075	296,345	153,775	148,660	302,435	155,880	151,285	307,165
35-39	136,935	128,635	265,570	139,860	131,335	271,195	142,520	134,110	276,630	146,145	137,455	283,600	149,975	140,755	290,730	154,000	144,685	298,685
40-44	132,345	125,330	257,675	132,885	125,130	258,015	135,905	127,385	263,290	138,850	129,730	268,580	141,525	132,505	274,030	144,340	135,120	279,460
45-49	146,910	141,400	288,310	146,080	140,550	286,630	143,655	137,575	281,230	141,030	134,430	275,460	138,490	131,175	269,665	136,610	129,145	265,755
50-54	136,695	131,405	268,100	140,265	134,980	275,245	143,445	137,955	281,400	145,325	140,475	285,800	147,005	142,480	289,485	147,850	143,210	291,060
55-59	108,330	106,560	214,890	114,155	112,040	226,195	120,090	117,880	237,970	126,090	123,265	249,355	131,140	127,910	259,050	135,325	131,680	267,005
60-64	84,315	84,410	168,725	89,470	89,500	178,970	94,185	94,080	188,265	96,935	96,785	193,720	100,710	100,500	201,210	105,930	105,625	211,555
65-69	59,335	60,705	120,040	62,285	63,645	125,930	65,465	67,000	132,465	70,945	72,780	143,725	75,845	77,915	153,760	80,190	82,555	162,745
70-74	43,270	47,390	90,660	44,405	48,575	92,980	46,010	50,205	96,215	48,000	52,210	100,210	50,580	54,810	105,390	53,215	57,555	110,770
75-79	33,280	39,690	72,970	33,525	40,040	73,565	33,820	40,500	74,320	34,150	40,970	75,120	34,645	41,700	76,345	35,405	42,680	78,085
80-84	20,815	30,060	50,875	21,645	30,730	52,375	22,310	31,395	53,705	22,790	31,890	54,680	23,175	32,305	55,480	23,455	32,565	56,020
85-89	9,825	19,405	29,230	10,055	19,610	29,665	10,330	19,905	30,235	10,615	19,985	30,600	10,980	20,310	31,290	11,350	20,595	31,945
90+	3,140	8,385	11,525	3,260	8,700	11,960	3,320	8,730	12,050	3,355	8,880	12,235	3,335	8,800	12,135	3,345	8,815	12,160
TOTAL	1,809,565	1,771,845	3,581,410	1,846,520	1,808,200	3,654,720	1,883,770	1,844,820	3,728,590	1,921,465	1,881,905	3,803,370	1,959,100	1,919,140	3,878,240	1,996,885	1,956,475	3,953,360

Alberta Finance, Statistics

Series 1	2015			2016			2017			2018			2019			2020		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	147,895	139,545	287,440	150,225	141,760	291,985	151,980	143,415	295,395	153,500	144,840	298,340	154,780	146,065	300,845	155,890	147,095	302,985
5-9	140,760	132,560	273,320	144,985	136,515	281,500	149,190	140,500	289,690	152,985	144,085	297,070	156,340	147,275	303,615	159,200	149,945	309,145
10-14	127,980	120,965	248,945	132,670	125,015	257,685	136,390	128,545	264,935	140,300	132,225	272,525	144,370	136,085	280,455	148,550	140,025	288,575
15-19	122,655	115,915	238,570	122,680	116,330	239,010	124,840	118,690	243,530	127,885	121,270	249,155	130,965	124,350	255,315	134,705	127,770	262,475
20-24	133,880	128,905	262,785	133,910	128,795	262,705	133,690	128,035	261,725	133,630	127,990	261,620	134,070	128,425	262,495	134,390	128,880	263,270
25-29	148,815	144,740	293,555	149,500	145,580	295,080	150,400	146,535	296,935	151,025	147,145	298,170	151,010	146,795	297,805	150,450	146,230	296,680
30-34	157,875	153,190	311,065	159,600	155,065	314,665	160,920	156,460	317,380	161,555	157,335	318,890	162,645	158,825	321,470	164,035	160,525	324,560
35-39	157,065	148,650	305,715	159,740	152,290	312,030	162,085	155,750	317,835	164,575	159,340	323,915	166,685	161,940	328,625	168,660	163,870	332,530
40-44	147,245	137,810	285,055	149,905	140,575	290,480	153,475	143,905	297,380	157,285	147,170	304,455	161,260	151,090	312,350	164,315	155,030	319,345
45-49	137,135	128,940	266,075	140,115	131,175	271,290	143,035	133,480	276,515	145,665	136,270	281,935	148,450	138,850	287,300	151,335	141,520	292,855
50-54	147,010	142,400	289,410	144,645	139,430	284,075	142,045	136,340	278,385	139,565	133,095	272,660	137,720	131,105	268,825	138,230	130,920	269,150
55-59	138,820	135,190	274,010	141,880	138,105	279,985	143,725	140,585	284,310	145,335	142,535	287,870	146,140	143,250	289,390	145,340	142,435	287,775
60-64	111,495	110,960	222,455	117,145	116,640	233,785	122,870	121,835	244,705	127,665	126,360	254,025	131,670	130,025	261,695	134,995	133,410	268,405
65-69	84,945	87,400	172,345	89,285	91,755	181,040	91,845	94,335	186,180	95,365	97,890	193,255	100,205	102,820	203,025	105,375	107,915	213,290
70-74	55,820	60,265	116,085	58,605	63,390	121,995	63,480	68,795	132,275	67,810	73,545	141,355	71,635	77,835	149,470	75,785	82,310	158,095
75-79	36,345	43,740	80,085	37,655	45,170	82,825	39,275	46,965	86,240	41,390	49,270	90,660	43,530	51,690	95,220	45,620	54,095	99,715
80-84	23,620	32,870	56,490	23,830	33,255	57,085	24,070	33,645	57,715	24,430	34,235	58,665	24,960	35,030	59,990	25,635	35,880	61,515
85-89	11,800	21,065	32,865	12,155	21,540	33,695	12,410	21,845	34,255	12,580	22,100	34,680	12,720	22,270	34,990	12,820	22,485	35,305
90+	3,395	8,860	12,255	3,465	8,930	12,395	3,470	8,910	12,380	3,535	9,005	12,540	3,555	9,040	12,595	3,635	9,170	12,805
TOTAL	2,034,535	1,993,970	4,028,505	2,071,995	2,031,315	4,103,310	2,109,195	2,068,570	4,177,765	2,146,080	2,105,705	4,251,785	2,182,710	2,142,765	4,325,475	2,218,965	2,179,510	4,398,475

Alberta Finance, Statistics

Series 1	2021			2022			2023			2024			2025			2026		
	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL	SEX		TOTAL
AGE	MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE		MALE	FEMALE	
0-4	156,855	148,005	304,860	157,745	148,840	306,585	158,575	149,630	308,205	159,415	150,415	309,830	160,295	151,260	311,555	161,275	152,170	313,445
5-9	161,520	152,145	313,665	163,285	153,805	317,090	164,790	155,225	320,015	166,080	156,440	322,520	167,205	157,485	324,690	168,140	158,395	326,535
10-14	152,760	144,010	296,770	156,965	147,970	304,935	160,780	151,565	312,345	164,130	154,730	318,860	166,965	157,415	324,380	169,290	159,610	328,900
15-19	139,395	131,825	271,220	143,115	135,335	278,450	147,015	139,025	286,040	151,060	142,860	293,920	155,240	146,805	302,045	159,450	150,775	310,225
20-24	134,425	129,280	263,705	136,545	131,635	268,180	139,595	134,225	273,820	142,665	137,290	279,955	146,380	140,700	287,080	151,040	144,750	295,790
25-29	150,515	146,115	296,630	150,300	145,345	295,645	150,220	145,305	295,525	150,655	145,740	296,395	150,985	146,190	297,175	151,015	146,590	297,605
30-34	164,740	161,365	326,105	165,635	162,310	327,945	166,250	162,935	329,185	166,240	162,560	328,800	165,680	162,005	327,685	165,750	161,875	327,625
35-39	170,375	165,725	336,100	171,675	167,115	338,790	172,320	167,990	340,310	173,400	169,460	342,860	174,795	171,155	345,950	175,455	171,995	347,450
40-44	166,945	158,665	325,610	169,290	162,095	331,385	171,755	165,685	337,440	173,835	168,275	342,110	175,785	170,175	345,960	177,500	172,025	349,525
45-49	153,950	144,250	298,200	157,485	147,570	305,055	161,250	150,830	312,080	165,185	154,715	319,900	168,200	158,610	326,810	170,820	162,230	333,050
50-54	141,180	133,105	274,285	144,055	135,415	279,470	146,640	138,145	284,785	149,360	140,700	290,060	152,195	143,345	295,540	154,775	146,055	300,830
55-59	143,020	139,525	282,545	140,490	136,475	276,965	138,075	133,315	271,390	136,300	131,370	267,670	136,825	131,195	268,020	139,690	133,345	273,035
60-64	137,920	136,255	274,175	139,645	138,650	278,295	141,195	140,550	281,745	141,960	141,225	283,185	141,175	140,420	281,595	138,945	137,590	276,535
65-69	110,610	113,340	223,950	115,890	118,310	234,200	120,345	122,610	242,955	124,025	126,090	250,115	127,090	129,330	256,420	129,780	132,050	261,830
70-74	79,560	86,310	165,870	81,810	88,735	170,545	84,940	92,055	176,995	89,215	96,625	185,840	93,795	101,340	195,135	98,395	106,380	204,775
75-79	47,885	56,860	104,745	51,885	61,675	113,560	55,425	65,900	121,325	58,480	69,660	128,140	61,790	73,580	135,370	64,775	77,080	141,855
80-84	26,580	37,080	63,660	27,710	38,520	66,230	29,235	40,420	69,655	30,735	42,370	73,105	32,160	44,300	76,460	33,765	46,550	80,315
85-89	12,945	22,780	35,725	13,070	23,035	36,105	13,270	23,450	36,720	13,565	23,970	37,535	13,950	24,560	38,510	14,475	25,415	39,890
90+	3,655	9,235	12,890	3,640	9,160	12,800	3,660	9,195	12,855	3,665	9,190	12,855	3,685	9,285	12,970	3,705	9,400	13,105
TOTAL	2,254,835	2,215,875	4,470,710	2,290,235	2,251,995	4,542,230	2,325,335	2,288,055	4,613,390	2,359,970	2,323,685	4,683,655	2,394,215	2,359,155	4,753,370	2,428,040	2,394,280	4,822,320

Alberta Finance, Statistics

Table 1.4: Mortality table, Alberta, 1995-1997

Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female
0	0.00666	0.00527	20	0.00126	0.00042	40	0.00182	0.00109	60	0.01017	0.00621	80	0.07157	0.04363	100	0.46470	0.34272
1	0.00048	0.00043	21	0.00129	0.00038	41	0.00195	0.00117	61	0.01112	0.00662	81	0.07911	0.04880	101	0.48958	0.36621
2	0.00037	0.00028	22	0.00130	0.00036	42	0.00208	0.00128	62	0.01225	0.00721	82	0.08775	0.05496	102	0.51379	0.38991
3	0.00031	0.00026	23	0.00127	0.00035	43	0.00220	0.00139	63	0.01355	0.00798	83	0.09734	0.06196	103	0.53717	0.41369
4	0.00026	0.00024	24	0.00120	0.00035	44	0.00232	0.00150	64	0.01498	0.00887	84	0.10772	0.06964	104	0.55958	0.43741
5	0.00021	0.00019	25	0.00111	0.00036	45	0.00245	0.00163	65	0.01655	0.00989	85	0.11913	0.07823	105	0.58087	0.46095
6	0.00017	0.00012	26	0.00104	0.00037	46	0.00261	0.00177	66	0.01832	0.01101	86	0.13177	0.08797	106	1.00000	0.48417
7	0.00014	0.00007	27	0.00101	0.00038	47	0.00282	0.00194	67	0.02031	0.01223	87	0.14588	0.09908	107	1.00000	0.50695
8	0.00011	0.00007	28	0.00104	0.00041	48	0.00306	0.00211	68	0.02248	0.01351	88	0.17666	0.11514	108	1.00000	0.52916
9	0.00011	0.00008	29	0.00112	0.00044	49	0.00332	0.00230	69	0.02481	0.01487	89	0.19648	0.12881	109	1.00000	0.55069
10	0.00013	0.00010	30	0.00121	0.00047	50	0.00362	0.00250	70	0.02738	0.01634	90	0.21748	0.14354			
11	0.00014	0.00010	31	0.00130	0.00051	51	0.00399	0.00274	71	0.03018	0.01797	91	0.23956	0.15934			
12	0.00021	0.00015	32	0.00136	0.00056	52	0.00444	0.00304	72	0.03330	0.01981	92	0.26262	0.17619			
13	0.00034	0.00021	33	0.00140	0.00061	53	0.00499	0.00341	73	0.03662	0.02174	93	0.28654	0.19407			
14	0.00051	0.00029	34	0.00142	0.00066	54	0.00562	0.00385	74	0.04010	0.02373	94	0.31117	0.21293			
15	0.00070	0.00037	35	0.00144	0.00072	55	0.00631	0.00432	75	0.04392	0.02595	95	0.33637	0.23271			
16	0.00088	0.00043	36	0.00147	0.00079	56	0.00705	0.00479	76	0.04826	0.02857	96	0.36196	0.25336			
17	0.00102	0.00047	37	0.00152	0.00086	57	0.00782	0.00523	77	0.05329	0.03175	97	0.38777	0.27479			
18	0.00112	0.00048	38	0.00160	0.00093	58	0.00858	0.00559	78	0.05886	0.03533	98	0.41362	0.29689			
19	0.00120	0.00045	39	0.00171	0.00100	59	0.00934	0.00589	79	0.06490	0.03922	99	0.43932	0.31958			

Statistics Canada

Table 1.5: Table of Mortality Improvement

Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female	Age	Male	Female
1	0.02	0.02	18	0.019	0.014	35	0.005	0.011	52	0.02	0.014	69	0.014	0.005	86	0.007	0.005
2	0.02	0.02	19	0.019	0.015	36	0.005	0.012	53	0.02	0.012	70	0.015	0.005	87	0.006	0.004
3	0.02	0.02	20	0.019	0.016	37	0.005	0.013	54	0.02	0.01	71	0.015	0.006	88	0.005	0.004
4	0.02	0.02	21	0.018	0.017	38	0.006	0.014	55	0.019	0.008	72	0.015	0.006	89	0.005	0.003
5	0.02	0.02	22	0.017	0.017	39	0.007	0.015	56	0.018	0.006	73	0.015	0.007	90	0.004	0.003
6	0.02	0.02	23	0.015	0.016	40	0.008	0.015	57	0.017	0.005	74	0.015	0.007	91	0.004	0.003
7	0.02	0.02	24	0.013	0.015	41	0.009	0.015	58	0.016	0.005	75	0.014	0.008	92	0.003	0.003
8	0.02	0.02	25	0.01	0.014	42	0.01	0.015	59	0.016	0.005	76	0.014	0.008	93	0.003	0.002
9	0.02	0.02	26	0.006	0.012	43	0.011	0.015	60	0.016	0.005	77	0.013	0.007	94	0.003	0.002
10	0.02	0.02	27	0.005	0.012	44	0.012	0.015	61	0.015	0.005	78	0.012	0.007	95	0.002	0.002
11	0.02	0.02	28	0.005	0.012	45	0.013	0.016	62	0.015	0.005	79	0.011	0.007	96	0.002	0.002
12	0.02	0.02	29	0.005	0.012	46	0.014	0.017	63	0.014	0.005	80	0.01	0.007	97	0.002	0.001
13	0.02	0.02	30	0.005	0.01	47	0.015	0.018	64	0.014	0.005	81	0.009	0.007	98	0.001	0.001
14	0.019	0.018	31	0.005	0.008	48	0.016	0.018	65	0.014	0.005	82	0.008	0.007	99	0.001	0.001
15	0.019	0.016	32	0.005	0.008	49	0.017	0.018	66	0.013	0.005	83	0.008	0.007	100	0.001	0.001
16	0.019	0.015	33	0.005	0.009	50	0.018	0.017	67	0.013	0.005	84	0.007	0.007			
17	0.019	0.014	34	0.005	0.01	51	0.019	0.016	68	0.014	0.005	85	0.007	0.006			
1	0.02	0.02	18	0.019	0.014	35	0.005	0.011	52	0.02	0.014	69	0.014	0.005	86	0.007	0.005

Scale AA - Transaction of Society of Actuaries 1995

Table 1.6: Projected population (Low Projections, rounded to 5)

MALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	101,650	102,735	103,795	105,125	104,835	104,430	103,955	103,380	102,695	101,845	101,115	100,510	99,970	99,535
5-9	107,320	106,710	105,660	104,120	104,460	105,265	105,565	106,105	107,025	106,420	105,815	105,170	104,500	103,765
10-14	115,990	115,290	113,840	112,870	111,385	109,920	108,775	107,350	105,490	105,635	106,270	106,475	106,920	107,795
15-19	118,115	118,335	118,815	118,500	118,375	117,985	116,875	115,120	113,905	112,265	110,670	109,465	107,980	106,110
20-24	122,025	122,615	122,885	122,785	122,295	121,355	120,870	120,815	120,105	119,700	119,055	117,805	115,985	114,760
25-29	123,800	126,095	127,035	127,285	127,050	126,995	126,500	125,970	125,315	124,405	123,035	122,335	122,140	121,405
30-34	123,130	124,520	125,610	126,120	127,260	128,480	129,710	129,880	129,570	128,915	128,465	127,765	127,120	126,390
35-39	126,820	123,835	123,040	124,475	125,605	126,320	126,915	127,420	127,490	128,330	129,295	130,345	130,410	130,065
40-44	141,940	142,060	140,230	136,620	132,640	128,660	125,155	123,955	125,080	126,000	126,495	126,975	127,425	127,465
45-49	131,170	135,080	138,110	140,565	141,565	142,420	142,155	140,080	136,315	132,250	128,150	124,615	123,375	124,495
50-54	103,300	108,615	114,210	119,840	125,475	130,365	134,020	136,860	139,160	140,120	140,755	140,445	138,395	134,670
55-59	80,760	85,450	90,585	95,215	97,690	101,695	106,760	112,190	117,650	123,140	127,620	131,170	133,945	136,215
60-64	58,005	61,565	64,435	67,510	73,020	78,410	82,805	87,685	92,075	94,465	97,895	102,755	107,950	113,200
65-69	47,020	47,905	48,970	50,490	52,410	55,415	58,125	60,770	63,645	68,855	73,485	77,575	82,100	86,190
70-74	40,095	40,585	40,800	40,995	41,270	42,355	43,145	44,135	45,565	47,350	49,725	52,155	54,520	57,115
75-79	28,475	29,400	30,515	31,425	32,065	33,475	33,940	34,200	34,445	34,765	35,230	35,915	36,780	38,015
80-84	17,475	18,060	18,460	18,900	19,380	20,825	21,555	22,455	23,205	23,750	24,175	24,505	24,705	24,925
85-89	7,735	7,875	8,205	8,675	9,165	10,020	10,370	10,660	10,985	11,330	11,765	12,195	12,715	13,155
90+	3,035	3,070	3,105	3,090	3,080	3,300	3,355	3,510	3,610	3,700	3,730	3,765	3,865	3,985

MALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	99,145	98,665	98,045	97,380	96,640	95,900	95,145	94,405	93,685	92,985	92,430	91,900	91,360	90,790
5-9	102,915	102,165	101,585	101,045	100,600	100,225	99,725	99,125	98,445	97,700	97,005	96,240	95,495	94,770
10-14	107,205	106,580	105,930	105,260	104,535	103,695	102,980	102,335	101,815	101,365	101,035	100,530	99,930	99,245
15-19	106,245	106,885	107,105	107,535	108,435	107,830	107,220	106,590	105,905	105,185	104,365	103,650	103,005	102,485
20-24	113,140	111,540	110,335	108,870	107,000	107,155	107,805	108,025	108,440	109,340	108,860	108,250	107,620	106,940
25-29	120,970	120,325	119,095	117,295	116,035	114,435	112,850	111,655	110,205	108,325	108,680	109,320	109,560	109,980
30-34	125,480	124,125	123,395	123,215	122,450	122,030	121,405	120,165	118,360	117,135	115,685	114,085	112,880	111,420
35-39	129,420	128,995	128,295	127,630	126,905	125,990	124,660	123,945	123,760	123,015	122,660	122,045	120,805	119,000
40-44	128,305	129,260	130,300	130,385	130,015	129,390	128,970	128,265	127,595	126,880	126,070	124,750	124,040	123,855
45-49	125,390	125,890	126,375	126,825	126,865	127,715	128,645	129,710	129,775	129,425	128,975	128,570	127,880	127,225
50-54	130,660	126,635	123,170	121,980	123,085	123,990	124,485	124,970	125,420	125,470	126,675	127,625	128,705	128,790
55-59	137,145	137,775	137,505	135,500	131,890	127,980	124,080	120,710	119,585	120,695	122,265	122,795	123,315	123,800
60-64	118,475	122,785	126,200	128,895	131,065	131,970	132,570	132,345	130,425	126,940	124,480	120,745	117,520	116,475
65-69	88,455	91,690	96,270	101,145	106,070	111,010	115,065	118,265	120,790	122,850	125,555	126,215	126,090	124,345
70-74	61,835	66,030	69,720	73,785	77,455	79,545	82,510	86,670	91,120	95,585	102,215	106,075	109,160	111,620
75-79	39,555	41,590	43,650	45,670	47,865	51,930	55,530	58,645	62,055	65,140	69,475	72,220	76,020	80,085
80-84	25,170	25,530	26,055	26,720	27,655	28,800	30,335	31,870	33,350	34,995	40,565	43,505	46,090	48,915
85-89	13,455	13,700	13,880	14,015	14,155	14,310	14,530	14,860	15,260	15,835	18,095	19,140	20,195	21,225
90+	4,040	4,155	4,230	4,375	4,460	4,490	4,575	4,615	4,685	4,740	5,445	5,575	5,745	5,945

MALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	90,220	89,625	89,030	88,475	87,975	87,515	87,120	86,770	86,445	86,140	85,860	85,535	85,160	84,735
5-9	94,055	93,495	92,965	92,420	91,845	91,265	90,665	90,065	89,505	89,000	88,535	88,135	87,780	87,450
10-14	98,495	97,795	97,025	96,270	95,540	94,825	94,260	93,720	93,175	92,595	92,015	91,410	90,805	90,240
15-19	102,035	101,700	101,200	100,505	99,910	99,155	98,455	97,680	96,930	96,195	95,475	94,905	94,365	93,815
20-24	106,215	105,400	104,680	104,035	103,510	103,060	102,730	102,230	101,630	100,945	100,185	99,480	98,705	97,950
25-29	110,890	110,435	109,825	109,190	108,505	107,775	106,955	106,230	105,575	105,045	104,595	104,280	103,760	103,155
30-34	109,525	109,835	110,495	110,750	111,175	112,090	111,650	111,040	110,400	109,710	108,980	108,155	107,420	106,760
35-39	117,765	116,315	114,715	113,500	112,035	110,140	110,430	111,095	111,355	111,785	112,700	112,280	111,670	111,035
40-44	123,115	122,765	122,155	120,925	119,130	117,895	116,450	114,855	113,640	112,185	110,295	110,570	111,240	111,510
45-49	126,525	125,730	124,425	123,725	123,550	122,830	122,490	121,890	120,680	118,900	117,675	116,240	114,660	113,455
50-54	128,465	128,040	127,660	126,995	126,365	125,690	124,915	123,640	122,960	122,805	122,105	121,785	121,205	120,020
55-59	123,885	125,110	126,080	127,185	127,310	127,020	126,635	126,295	125,670	125,080	124,440	123,705	122,470	121,825
60-64	117,605	119,190	119,705	120,320	120,845	120,980	122,225	123,225	124,355	124,525	124,205	123,965	123,675	123,115
65-69	121,110	118,840	115,350	112,340	111,415	112,565	114,155	114,775	115,380	115,950	116,080	117,275	118,235	119,320
70-74	113,655	116,290	117,035	117,050	115,555	112,670	110,675	107,540	104,845	104,085	105,160	106,645	107,220	107,790
75-79	84,175	90,195	93,785	96,695	99,060	101,055	103,585	104,435	104,630	103,475	100,890	99,105	96,295	93,880
80-84	51,500	55,085	57,425	60,620	64,040	67,495	72,515	75,605	78,160	80,260	81,895	83,945	84,635	84,795
85-89	22,365	26,030	28,035	29,820	31,775	33,590	36,070	37,750	40,005	42,420	44,710	48,035	50,085	51,775
90+	6,215	7,155	7,625	8,100	8,575	9,100	10,665	11,570	12,390	13,290	14,050	15,085	15,790	16,730

MALE AGE	2045	2046	2047	2048	2049	2050
0-4	84,270	83,750	83,225	82,705	82,185	81,670
5-9	87,145	86,865	86,535	86,155	85,730	85,260
10-14	89,730	89,280	88,860	88,500	88,170	87,860
15-19	93,235	92,655	92,050	91,440	90,870	90,360
20-24	97,215	96,490	95,920	95,375	94,825	94,245
25-29	102,465	101,705	100,990	100,210	99,445	98,700
30-34	106,230	105,770	105,430	104,935	104,325	103,635
35-39	110,345	109,610	108,785	108,050	107,385	106,855
40-44	111,940	112,860	112,455	111,850	111,215	110,530
45-49	112,010	110,135	110,410	111,065	111,365	111,805
50-54	118,265	117,080	115,650	114,090	112,905	111,485
55-59	121,695	121,030	120,740	120,195	119,040	117,330
60-64	122,575	121,995	121,320	120,150	119,560	119,470
65-69	119,485	119,260	118,945	118,670	118,130	117,615
70-74	108,320	108,445	109,560	110,455	111,465	111,620
75-79	93,205	94,165	95,495	96,015	96,520	96,995
80-84	83,860	81,765	80,315	78,040	76,085	75,535
85-89	53,180	54,250	55,610	56,065	56,170	55,550
90+	17,740	18,700	20,090	20,945	21,655	22,240

FEMALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	96,245	97,430	98,310	99,200	98,900	98,530	98,075	97,525	96,875	96,075	95,405	94,815	94,310	93,895
5-9	100,725	100,215	99,430	98,370	99,105	99,605	100,095	100,465	100,980	100,410	99,830	99,240	98,600	97,905
10-14	110,125	109,080	107,660	106,530	104,580	103,225	102,195	101,050	99,710	100,245	100,590	100,370	101,275	101,755
15-19	111,475	112,085	112,840	112,690	112,595	112,185	110,740	108,995	107,655	105,530	104,045	102,920	101,730	100,385
20-24	115,715	116,700	116,755	116,675	116,155	115,290	115,145	115,350	114,765	114,365	113,720	112,110	110,295	108,925
25-29	114,295	116,475	118,300	119,520	120,325	121,225	121,105	120,345	119,665	118,700	117,500	117,115	117,175	116,545
30-34	115,235	116,400	117,250	117,810	118,660	119,360	120,500	121,555	122,205	122,620	123,175	122,830	121,930	121,210
35-39	120,880	117,915	116,510	117,295	117,880	118,715	119,115	119,400	119,535	120,135	120,580	121,560	122,490	123,110
40-44	136,955	137,060	135,410	131,460	127,185	122,735	119,325	117,585	118,105	118,520	119,180	119,500	119,725	119,840
45-49	125,560	129,065	132,140	134,540	136,345	137,670	137,460	135,610	131,520	127,170	122,580	119,135	117,355	117,880
50-54	100,410	105,440	110,625	116,085	121,045	125,405	128,685	131,595	133,865	135,590	136,710	136,485	134,610	130,530
55-59	79,710	84,470	89,420	93,750	96,100	99,590	104,395	109,355	114,655	119,470	123,520	126,690	129,520	131,720
60-64	58,490	61,380	64,185	67,410	73,120	78,210	82,705	87,425	91,580	93,800	97,045	101,660	106,455	111,595
65-69	48,565	49,625	50,675	52,105	54,030	56,610	59,270	61,870	64,925	70,390	75,160	79,430	83,920	87,885
70-74	43,600	43,930	44,180	44,530	44,880	45,620	46,505	47,465	48,810	50,550	52,880	55,335	57,780	60,610
75-79	36,010	36,490	37,210	37,920	38,430	39,120	39,385	39,615	39,950	40,270	40,825	41,625	42,475	43,740
80-84	27,415	28,250	28,555	28,915	28,960	29,740	30,155	30,785	31,415	31,860	32,205	32,410	32,615	32,925
85-89	15,420	15,670	16,405	17,125	18,050	19,200	19,775	20,010	20,320	20,410	20,735	21,045	21,500	21,980
90+	8,085	8,225	8,250	8,220	8,225	8,430	8,605	8,945	9,030	9,240	9,220	9,290	9,365	9,465

FEMALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	93,555	93,055	92,490	91,865	91,165	90,455	89,765	89,045	88,370	87,720	87,195	86,700	86,190	85,650
5-9	97,105	96,420	95,840	95,340	94,915	94,545	94,080	93,520	92,875	92,180	91,565	90,870	90,145	89,460
10-14	101,200	100,615	100,005	99,380	98,670	97,890	97,190	96,595	96,105	95,670	95,360	94,895	94,330	93,685
15-19	100,920	101,275	101,650	101,955	102,425	101,865	101,290	100,695	100,055	99,360	98,625	97,920	97,320	96,830
20-24	106,805	105,325	104,220	103,010	101,680	102,215	102,560	102,930	103,240	103,720	103,270	102,690	102,095	101,445
25-29	116,150	115,490	113,880	112,075	110,690	108,575	107,090	105,990	104,810	103,475	104,085	104,440	104,820	105,135
30-34	120,245	119,050	118,665	118,745	118,100	117,695	117,045	115,450	113,625	112,255	110,330	108,820	107,695	106,500
35-39	123,500	124,060	123,720	122,820	122,110	121,150	119,935	119,580	119,625	119,000	118,715	118,060	116,470	114,635
40-44	120,420	120,870	121,855	122,775	123,400	123,810	124,370	124,015	123,140	122,415	121,500	120,350	119,995	120,045
45-49	116,290	118,960	119,270	119,480	119,840	120,220	120,650	121,635	122,565	123,155	123,745	124,310	123,970	123,105
50-54	126,240	121,715	118,315	116,575	117,090	117,510	118,175	118,475	118,705	118,845	119,690	120,135	121,125	122,065
55-59	133,420	134,525	134,290	132,450	128,450	124,210	119,775	116,445	114,755	115,265	116,120	116,790	117,110	117,350
60-64	116,280	120,185	123,260	126,010	128,140	129,775	130,850	130,615	128,800	124,905	121,290	116,975	113,735	112,100
65-69	90,035	93,140	97,580	102,200	107,120	111,580	115,350	118,280	120,915	122,975	124,955	126,015	125,810	124,090
70-74	65,725	70,200	74,190	78,345	82,015	84,045	86,975	91,135	95,450	100,050	104,730	108,305	111,090	113,610
75-79	45,290	47,410	49,615	51,815	54,380	59,030	63,080	66,655	70,385	73,675	76,185	78,695	82,735	86,715
80-84	33,200	33,685	34,360	35,080	36,165	37,480	39,260	41,110	42,925	45,095	49,940	53,435	56,530	59,770
85-89	22,305	22,555	22,690	22,875	23,140	23,355	23,735	24,225	24,700	25,605	27,480	28,850	30,280	31,690
90+	9,480	9,605	9,660	9,855	9,975	9,950	10,025	10,065	10,180	10,325	11,110	11,335	11,610	11,910

FEMALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	85,110	84,550	83,990	83,465	82,995	82,560	82,190	81,860	81,560	81,265	81,000	80,690	80,340	79,940
5-9	88,805	88,275	87,770	87,255	86,715	86,165	85,600	85,035	84,505	84,025	83,585	83,210	82,875	82,565
10-14	92,985	92,360	91,685	90,930	90,240	89,580	89,040	88,535	88,015	87,470	86,920	86,350	85,775	85,240
15-19	96,395	96,080	95,610	95,050	94,395	93,695	93,070	92,365	91,630	90,935	90,265	89,730	89,215	88,695
20-24	100,745	100,000	99,290	98,680	98,180	97,740	97,420	96,955	96,385	95,725	95,015	94,380	93,670	92,930
25-29	105,625	105,185	104,600	103,995	103,335	102,625	101,870	101,145	100,525	100,020	99,570	99,245	98,770	98,195
30-34	105,150	105,735	106,100	106,490	106,815	107,310	106,860	106,290	105,675	105,010	104,290	103,525	102,790	102,160
35-39	113,250	111,320	109,790	108,655	107,450	106,095	105,665	107,040	107,435	107,705	108,205	107,845	107,255	106,635
40-44	119,425	119,140	118,495	116,910	115,075	113,685	111,755	110,225	109,085	107,880	106,525	107,090	107,470	107,870
45-49	122,390	121,545	120,345	119,905	120,050	119,445	119,165	118,530	116,950	115,125	113,745	111,820	110,295	109,155
50-54	122,670	123,270	123,850	123,525	122,680	121,980	121,150	119,970	119,025	119,605	119,100	118,835	118,215	116,655
55-59	117,505	118,355	118,810	119,810	120,755	121,370	121,985	122,570	122,270	121,450	120,770	119,965	118,815	118,485
60-64	112,605	113,450	114,125	114,450	114,700	114,865	115,710	116,170	117,160	118,100	118,720	119,330	119,920	119,640
65-69	120,355	116,900	112,755	109,660	108,100	108,610	109,445	110,115	110,445	110,705	110,870	111,685	112,130	113,080
70-74	115,580	117,480	118,515	118,365	116,780	113,305	110,085	106,220	103,335	101,805	102,375	103,165	103,795	104,110
75-79	90,955	95,280	98,605	101,215	103,580	105,450	107,255	108,275	108,215	106,835	103,665	100,710	97,175	94,535
80-84	62,645	64,855	67,250	70,605	74,090	77,810	81,605	84,550	86,885	89,020	90,630	92,180	93,060	93,005
85-89	33,365	37,035	39,715	42,110	44,620	46,870	48,625	50,530	53,160	55,905	58,710	61,570	63,795	65,560
90+	12,360	13,315	14,030	14,780	15,520	16,400	18,270	19,660	20,915	22,240	23,380	24,235	25,185	26,495

FEMALE AGE	2045	2046	2047	2048	2049	2050
0-4	79,500	79,010	78,515	78,025	77,535	77,050
5-9	82,275	82,010	81,695	81,340	80,940	80,495
10-14	84,760	84,315	83,935	83,600	83,285	82,995
15-19	88,145	87,590	87,020	86,445	85,905	85,420
20-24	92,225	91,550	91,000	90,485	89,960	89,400
25-29	97,525	96,805	96,160	95,440	94,685	93,965
30-34	101,645	101,185	100,855	100,380	99,795	99,120
35-39	105,965	105,240	104,475	103,735	103,100	102,580
40-44	108,205	108,710	108,300	107,715	107,085	106,425
45-49	107,980	106,610	107,170	107,580	107,965	108,310
50-54	114,845	113,475	111,565	110,050	108,925	107,745
55-59	118,565	117,995	117,745	117,145	115,615	113,835
60-64	118,855	118,200	117,430	116,315	116,005	116,100
65-69	113,990	114,585	115,175	115,745	115,475	114,715
70-74	104,355	104,510	105,275	105,695	106,595	107,450
75-79	93,220	93,660	94,380	94,955	95,245	95,470
80-84	91,820	89,090	86,555	83,515	81,250	80,115
85-89	67,170	68,385	69,555	70,215	70,175	69,280
90+	27,860	29,260	30,685	31,795	32,675	33,475

Table 1.7: Projected population (Medium Projections, rounded to 5)

MALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	102,055	103,910	106,035	108,730	110,055	111,430	112,800	114,145	115,400	116,540	117,580	118,445	119,195	119,735
5-9	107,495	107,215	106,605	105,530	106,390	108,000	109,405	111,235	113,805	115,130	116,500	117,850	119,165	120,450
10-14	116,120	115,610	114,450	113,760	112,685	111,670	111,060	110,240	109,045	109,915	111,505	112,900	114,725	117,290
15-19	118,255	118,715	119,460	119,435	119,585	119,540	118,805	117,505	116,770	115,695	114,655	114,080	113,250	112,060
20-24	122,290	123,305	124,075	124,505	124,510	124,080	124,140	124,665	124,550	124,715	124,625	123,905	122,605	121,890
25-29	124,120	126,915	128,525	129,485	130,005	130,795	131,170	131,560	131,805	131,820	131,295	131,365	131,870	131,745
30-34	123,385	125,215	126,890	128,040	129,925	131,995	134,180	135,355	136,150	136,650	137,350	137,745	138,120	138,360
35-39	127,000	124,335	123,945	125,890	127,555	128,910	130,275	131,615	132,650	134,510	136,540	138,705	139,665	140,665
40-44	142,070	142,405	140,890	137,650	134,050	130,545	127,580	126,995	128,810	130,480	131,800	133,135	134,500	135,505
45-49	131,265	135,305	138,535	141,235	142,515	143,695	143,810	142,175	138,890	135,355	131,845	128,920	128,340	130,145
50-54	103,350	108,750	114,480	120,250	126,060	131,135	135,030	138,140	140,785	142,090	143,110	143,225	141,640	138,420
55-59	80,795	85,565	90,765	95,520	98,110	102,235	107,475	113,065	118,715	124,450	129,180	132,970	136,055	138,640
60-64	58,650	61,700	64,655	67,830	73,455	78,960	83,490	88,495	93,055	95,630	99,215	104,270	109,645	115,100
65-69	47,050	47,985	49,130	50,730	52,760	55,825	58,645	61,420	64,405	69,765	74,530	78,760	83,430	87,675
70-74	40,115	40,615	40,865	41,115	41,420	42,545	43,395	44,465	45,985	47,880	50,380	52,915	55,430	58,150
75-79	28,485	29,425	30,550	31,480	32,130	33,575	34,055	34,340	34,655	35,015	35,525	36,280	37,205	38,530
80-84	17,475	18,070	18,480	18,940	19,410	20,865	21,625	22,520	23,290	23,855	24,305	24,645	24,890	25,155
85-89	7,735	7,875	8,210	8,680	9,170	10,035	10,380	10,680	11,015	11,305	11,810	12,245	12,780	13,225
90+	3,035	3,070	3,105	3,095	3,080	3,300	3,360	3,515	3,610	3,700	3,735	3,790	3,870	3,990

MALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	120,110	120,330	120,360	120,335	120,175	120,025	119,840	119,645	119,485	119,380	119,550	119,605	120,100	120,425
5-9	121,585	122,600	123,505	124,215	124,780	125,140	125,360	125,420	125,360	125,220	125,130	124,945	124,745	124,575
10-14	118,615	119,965	121,335	122,660	123,930	125,075	126,060	126,960	127,665	128,245	128,675	128,910	128,975	128,920
15-19	112,945	114,530	115,930	117,760	120,325	121,640	123,005	124,360	125,710	126,950	128,155	129,195	130,105	130,835
20-24	120,810	119,795	119,205	118,365	117,225	118,100	119,670	121,070	122,900	125,455	127,010	128,450	129,875	131,295
25-29	131,925	131,820	131,115	129,830	129,100	128,025	127,010	126,415	125,615	124,430	125,465	127,105	128,610	130,530
30-34	138,370	137,845	137,905	138,405	138,280	138,450	138,355	137,630	136,345	135,620	134,090	133,635	132,990	132,160
35-39	141,170	141,850	142,240	142,620	142,870	142,875	142,370	142,400	142,915	142,795	143,045	142,965	142,250	140,945
40-44	137,360	139,385	141,520	142,705	143,465	143,990	144,675	145,055	145,430	145,680	145,805	145,315	145,335	145,855
45-49	131,815	133,105	134,450	135,820	136,825	138,680	140,665	142,800	143,970	144,750	145,455	146,160	146,570	146,960
50-54	134,930	131,460	128,615	128,075	129,890	131,535	132,815	134,145	135,505	136,505	138,745	140,760	142,920	144,125
55-59	139,920	140,940	141,090	139,535	136,400	133,000	129,665	126,900	126,395	128,190	130,560	131,870	133,235	134,625
60-64	120,585	125,135	128,795	131,755	134,200	135,510	136,605	136,635	135,165	132,145	130,205	127,015	124,365	123,905
65-69	90,095	93,480	98,215	103,265	108,375	113,515	117,780	121,210	123,995	126,340	129,400	130,435	130,645	129,315
70-74	63,015	67,340	71,165	75,370	79,175	81,400	84,515	88,845	93,440	98,070	104,755	108,815	112,120	114,830
75-79	40,150	42,315	44,475	46,605	48,935	53,110	56,815	60,050	63,565	66,790	71,220	74,100	78,055	82,260
80-84	25,435	25,830	26,415	27,115	28,125	29,335	30,955	32,575	34,130	35,860	41,825	44,560	47,240	50,170
85-89	13,540	13,790	13,990	14,145	14,310	14,495	14,745	15,090	15,525	16,130	18,445	19,560	20,660	21,740
90+	4,055	4,170	4,245	4,390	4,475	4,515	4,585	4,640	4,700	4,775	5,495	5,635	5,810	6,025

MALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	120,810	121,225	121,700	122,280	122,980	123,720	124,560	125,470	126,420	127,410	128,445	129,425	130,345	131,175
5-9	124,470	124,635	124,895	125,205	125,545	125,945	126,380	126,875	127,470	128,160	128,970	129,840	130,790	131,780
10-14	128,780	128,665	128,495	128,295	128,120	128,010	128,170	128,440	128,755	129,105	129,515	129,960	130,470	131,080
15-19	131,435	131,865	132,135	132,210	132,160	132,020	131,830	131,740	131,535	131,360	131,245	131,410	131,680	132,010
20-24	132,605	133,875	134,975	135,940	136,725	137,365	137,850	138,125	138,220	138,180	138,050	137,900	137,770	137,565
25-29	133,200	134,925	136,475	138,000	139,515	140,920	142,285	143,475	144,515	145,370	146,065	146,600	146,915	147,035
30-34	130,940	131,910	133,505	135,185	137,185	139,955	141,825	143,470	145,080	146,675	148,165	149,605	150,870	151,980
35-39	140,180	139,230	138,150	137,470	136,625	135,380	136,300	138,015	139,065	141,720	144,580	146,530	148,245	149,915
40-44	145,755	146,010	145,945	145,235	143,930	143,145	142,185	141,090	140,390	139,540	138,285	139,175	140,905	142,600
45-49	147,230	147,375	146,900	146,930	147,460	147,380	147,650	147,600	146,910	145,610	144,615	143,800	142,770	142,065
50-54	144,940	145,670	146,400	146,835	147,250	147,545	147,710	147,270	147,310	147,865	147,810	148,095	148,065	147,400
55-59	135,665	137,920	139,965	142,155	143,400	144,250	145,020	145,785	146,255	146,705	147,040	147,245	146,840	146,915
60-64	125,705	128,070	129,430	130,825	132,250	133,330	135,595	137,660	139,870	141,160	142,055	142,870	143,675	144,200
65-69	126,515	124,735	121,755	119,285	118,915	120,710	123,055	124,435	125,850	127,285	128,325	130,505	132,485	134,620
70-74	117,130	120,105	121,200	121,525	120,415	117,930	116,385	113,725	111,530	111,295	112,075	115,170	116,400	117,785
75-79	86,510	92,585	96,360	99,470	102,060	104,300	107,140	108,305	108,765	107,975	105,750	104,370	101,980	100,010
80-84	52,855	56,525	58,975	62,300	65,840	69,430	74,505	77,750	80,475	82,785	84,600	86,905	87,850	88,240
85-89	22,935	26,670	28,735	30,590	32,620	34,500	37,040	38,795	41,145	43,645	46,025	49,390	51,540	53,345
90+	6,305	7,265	7,755	8,255	8,780	9,300	10,890	11,815	12,665	13,505	14,380	15,440	16,170	17,150

MALE AGE	2045	2046	2047	2048	2049	2050
0-4	131,920	132,555	133,120	133,625	134,075	134,470
5-9	132,815	133,890	134,915	135,875	136,750	137,530
10-14	131,805	132,620	133,515	134,485	135,505	136,565
15-19	132,370	132,790	133,250	133,770	134,400	135,140
20-24	137,385	137,270	137,435	137,720	138,065	138,445
25-29	147,010	146,880	146,790	146,600	146,390	146,205
30-34	152,890	153,635	154,210	154,560	154,700	154,685
35-39	151,570	153,120	154,615	155,930	157,090	158,045
40-44	144,695	147,575	149,620	151,385	153,100	154,800
45-49	141,220	139,970	140,840	142,590	144,315	146,440
50-54	146,125	145,345	144,405	143,325	142,635	141,800
55-59	147,485	147,475	147,790	147,800	147,170	145,935
60-64	144,695	145,075	145,330	144,990	145,105	145,720
65-69	135,865	136,725	137,510	138,285	138,785	139,265
70-74	119,130	120,105	122,140	124,005	125,995	127,155
75-79	99,800	101,310	103,275	104,435	105,620	106,825
80-84	87,580	85,775	84,660	82,715	81,120	80,950
85-89	54,875	56,080	57,605	58,235	58,495	58,055
90+	18,190	19,180	20,585	21,480	22,235	22,870

FEMALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	96,615	98,525	100,425	102,585	103,840	105,130	106,425	107,700	108,885	109,955	110,930	111,755	112,450	112,990
5-9	100,900	100,660	100,270	99,670	100,855	102,085	103,610	105,235	107,280	108,520	109,810	111,105	112,355	113,545
10-14	110,245	109,405	108,225	107,425	105,815	104,880	104,350	103,765	103,050	104,265	105,490	106,975	108,605	110,645
15-19	111,620	112,440	113,470	113,610	113,820	113,735	112,600	111,350	110,480	108,870	107,940	107,405	106,820	106,100
20-24	115,995	117,445	118,040	118,520	118,500	118,180	118,610	119,400	119,415	119,635	119,530	118,470	117,150	116,275
25-29	114,590	117,300	119,770	121,725	123,300	125,055	125,845	126,050	126,330	126,325	125,975	126,385	127,175	127,210
30-34	115,515	117,120	118,520	119,760	121,380	122,890	124,975	127,055	128,825	130,400	132,115	132,910	133,100	133,385
35-39	121,045	118,345	117,320	118,560	119,680	121,150	122,315	123,420	124,515	126,115	127,610	129,695	131,770	133,515
40-44	137,050	137,365	135,975	132,310	128,370	124,310	121,355	120,155	121,315	122,455	123,875	125,025	126,135	127,235
45-49	125,630	129,250	132,500	135,090	137,130	138,715	138,025	137,330	133,645	129,730	125,645	122,715	121,545	122,700
50-54	100,465	105,605	110,910	116,535	121,630	126,195	129,665	132,825	135,375	137,400	138,875	139,005	137,515	133,845
55-59	79,745	84,575	89,630	94,065	96,560	100,205	105,175	110,320	115,850	120,880	125,160	128,570	131,670	134,165
60-64	58,520	61,465	64,355	67,675	73,475	78,680	83,315	88,160	92,480	94,905	98,320	103,140	108,150	113,495
65-69	48,620	49,700	50,830	52,375	54,340	57,000	59,755	62,500	65,665	71,245	76,155	80,580	85,220	89,340
70-74	43,610	43,970	44,265	44,660	45,075	45,870	46,850	47,885	49,350	51,180	53,620	56,195	58,750	61,705
75-79	36,025	36,520	37,200	38,005	38,570	39,275	39,590	39,860	40,255	40,650	41,290	42,165	43,120	44,455
80-84	27,430	28,270	28,580	28,960	29,040	29,840	30,265	30,930	31,595	32,075	32,460	32,710	32,960	33,325
85-89	15,425	15,675	16,420	17,145	18,085	19,250	19,825	20,095	20,410	20,525	20,860	21,195	21,685	22,180
90+	8,085	8,230	8,255	8,220	8,235	8,435	8,610	8,960	9,045	9,255	9,235	9,305	9,395	9,490

FEMALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	113,330	113,520	113,590	113,525	113,395	113,240	113,080	112,880	112,730	112,630	112,785	113,025	113,305	113,615
5-9	114,605	115,580	116,410	117,095	117,610	117,975	118,175	118,210	118,165	118,035	118,165	117,995	117,805	117,650
10-14	111,890	113,155	114,445	115,730	116,910	117,975	118,925	119,760	120,455	120,970	121,465	121,680	121,720	121,680
15-19	107,335	108,530	110,040	111,675	113,715	114,945	116,240	117,515	118,765	119,975	121,040	122,020	122,885	123,605
20-24	114,695	113,740	113,220	112,640	111,930	113,140	114,355	115,845	117,470	119,500	120,820	122,185	123,530	124,845
25-29	127,405	127,310	126,235	124,940	124,065	122,470	121,535	121,010	120,430	119,720	121,155	122,465	124,050	125,780
30-34	133,380	133,040	133,405	134,235	134,255	134,465	134,370	133,305	132,000	131,140	130,265	129,285	128,700	128,085
35-39	135,095	136,825	137,620	137,795	138,090	138,065	137,730	138,150	138,935	138,960	139,510	139,435	138,375	137,030
40-44	128,835	130,320	132,395	134,470	136,230	137,785	139,505	140,290	140,495	140,790	140,910	140,585	141,000	141,795
45-49	123,820	125,250	126,390	127,500	128,585	130,200	131,670	133,735	135,800	137,540	139,235	140,990	141,805	142,030
50-54	130,000	125,960	123,080	121,905	123,050	124,185	125,610	126,745	127,855	128,935	130,760	132,255	134,340	136,430
55-59	136,170	137,590	137,720	136,245	132,660	128,875	124,890	122,080	120,985	122,090	123,615	125,050	126,205	127,330
60-64	118,375	122,545	125,835	128,840	131,265	133,160	134,570	134,680	133,255	129,735	126,630	122,735	119,980	118,885
65-69	91,680	94,940	99,575	104,390	109,500	114,190	118,155	121,325	124,205	126,525	128,770	130,155	130,285	128,925
70-74	66,950	71,545	75,665	79,975	83,800	85,995	89,085	93,425	97,920	102,715	107,575	111,345	114,370	117,120
75-79	46,105	48,320	50,655	52,945	55,625	60,375	64,550	68,245	72,105	75,530	78,165	81,030	85,035	89,195
80-84	33,670	34,220	34,965	35,755	36,925	38,310	40,175	42,115	44,025	46,280	51,205	54,810	58,020	61,380
85-89	22,535	22,805	23,000	23,195	23,505	23,765	24,185	24,730	25,320	26,215	28,140	29,580	31,080	32,560
90+	9,510	9,650	9,720	9,905	10,030	10,005	10,090	10,130	10,265	10,420	11,225	11,470	11,770	12,095

FEMALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	113,975	114,370	114,815	115,360	116,005	116,720	117,515	118,370	119,270	120,205	121,175	122,105	122,970	123,755
5-9	117,545	117,700	117,945	118,240	118,555	118,935	119,345	119,810	120,375	121,045	121,790	122,615	123,510	124,445
10-14	121,550	121,675	121,505	121,315	121,155	121,040	121,195	121,445	121,745	122,075	122,465	122,885	123,365	123,940
15-19	124,140	124,650	124,860	124,930	124,890	124,760	124,880	124,720	124,525	124,365	124,250	124,400	124,655	124,965
20-24	126,125	127,255	128,295	129,210	129,980	130,555	131,095	131,355	131,420	131,385	131,255	131,375	131,220	131,020
25-29	127,930	129,395	130,860	132,305	133,720	135,095	136,320	137,445	138,440	139,275	139,910	140,495	140,800	140,880
30-34	127,345	128,735	130,130	131,795	133,630	135,885	137,490	139,055	140,595	142,100	143,570	144,885	146,090	147,160
35-39	136,125	135,225	134,210	133,590	132,960	132,200	133,580	135,005	136,730	138,630	140,955	142,650	144,280	145,880
40-44	141,850	142,405	142,350	141,300	139,940	139,015	138,095	137,070	136,435	135,795	135,025	136,370	137,850	139,610
45-49	142,340	142,475	142,160	142,580	143,390	143,465	144,030	143,990	142,955	141,595	140,655	139,735	138,710	138,070
50-54	138,200	139,920	141,700	142,545	142,795	143,120	143,270	142,975	143,405	144,230	144,330	144,900	144,885	143,865
55-59	128,425	130,250	131,760	133,850	135,955	137,740	139,475	141,265	142,140	142,410	142,755	142,925	142,650	143,090
60-64	119,985	121,500	122,930	124,080	125,200	126,295	128,100	129,605	131,670	133,755	135,530	137,255	139,035	139,920
65-69	125,540	122,555	118,805	116,160	115,120	116,205	117,690	119,095	120,225	121,335	122,395	124,145	125,600	127,605
70-74	119,345	121,505	122,850	123,010	121,765	118,600	115,820	112,310	109,840	108,890	109,915	111,320	112,645	113,720
75-79	93,625	98,125	101,635	104,465	107,050	109,160	111,205	112,510	112,735	111,665	108,765	106,215	102,995	100,730
80-84	64,375	66,700	69,230	72,735	76,385	80,270	84,230	87,340	89,880	92,205	94,025	95,785	96,910	97,100
85-89	34,305	38,040	40,810	43,295	45,905	48,245	50,095	52,105	54,860	57,730	60,670	63,660	66,015	67,930
90+	12,570	13,545	14,290	15,070	15,845	16,755	18,640	20,070	21,365	22,735	23,895	24,810	25,805	27,170

FEMALE AGE	2045	2046	2047	2048	2049	2050
0-4	124,455	125,055	125,590	126,065	126,490	
5-9	125,420	126,435	127,405	128,310	129,140	
10-14	124,625	125,395	126,240	127,160	128,125	
15-19	125,300	125,700	126,135	126,625	127,215	
20-24	130,850	130,730	130,875	131,140	131,465	
25-29	140,855	140,730	140,840	140,695	140,485	
30-34	148,060	148,750	149,380	149,725	149,830	
35-39	147,450	148,980	150,355	151,615	152,730	
40-44	141,545	143,920	145,670	147,345	148,985	
45-49	137,430	136,660	137,995	139,500	141,280	
50-54	142,515	141,580	140,665	139,645	139,005	
55-59	143,925	144,050	144,635	144,645	143,650	
60-64	140,210	140,560	140,750	140,500	140,940	
65-69	129,625	131,345	133,015	134,740	135,595	
70-74	114,765	115,770	117,425	118,805	120,700	
75-79	99,860	100,800	102,090	103,305	104,290	
80-84	96,180	93,685	91,485	88,715	86,765	
85-89	69,690	71,065	72,395	73,245	73,390	
90+	28,590	30,045	31,525	32,695	33,640	

Table 1.8: Projected population (High Projections, rounded to 5)

MALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	102,520	105,335	108,865	113,485	117,205	121,150	125,225	129,430	133,675	137,900	141,705	145,080	147,945	150,280
5-9	107,765	107,995	108,165	108,095	110,260	113,345	116,435	120,205	124,890	128,625	132,545	136,620	140,805	145,035
10-14	116,260	116,085	115,405	115,430	115,195	115,125	115,590	115,920	115,925	118,100	121,160	124,250	128,000	132,695
15-19	118,450	119,270	120,530	121,145	122,065	122,745	122,730	122,170	122,245	122,030	121,960	122,410	122,735	122,765
20-24	122,670	124,385	126,110	127,710	129,050	129,790	130,900	132,345	133,045	133,960	134,590	134,610	134,050	134,110
25-29	124,555	128,200	131,015	133,565	135,950	138,555	140,680	142,700	144,440	145,770	146,435	147,520	148,955	149,650
30-34	123,725	126,265	129,000	131,580	135,200	139,105	143,150	146,255	148,930	151,320	153,830	155,940	157,935	159,665
35-39	127,245	125,090	125,475	128,410	131,395	134,145	136,980	139,910	142,575	146,205	150,040	154,075	157,145	159,825
40-44	142,240	142,965	142,000	139,495	136,835	134,340	132,415	132,965	135,905	138,950	141,630	144,455	147,370	150,040
45-49	131,370	135,650	139,240	142,425	144,355	146,215	147,100	146,285	143,870	141,260	138,730	136,865	137,405	140,405
50-54	103,415	108,970	114,905	121,000	127,185	132,700	137,050	140,660	143,805	145,805	147,525	148,405	147,590	145,250
55-59	80,845	85,715	91,120	96,065	98,945	103,335	108,870	114,775	120,795	126,885	132,025	136,295	139,870	143,010
60-64	58,710	61,880	65,025	68,435	74,325	80,085	84,895	90,145	94,955	97,785	101,655	106,990	112,675	118,455
65-69	47,090	48,110	49,380	51,155	53,400	56,620	59,670	62,680	65,925	71,510	76,515	80,975	85,860	90,330
70-74	40,130	40,660	40,970	41,300	41,710	42,920	43,915	45,130	46,820	48,915	51,625	54,395	57,140	60,085
75-79	28,495	29,460	30,610	31,580	32,280	33,745	34,290	34,635	35,030	35,465	36,080	36,960	38,035	39,505
80-84	17,480	18,075	18,500	18,975	19,475	20,935	21,720	22,670	23,460	24,060	24,560	24,955	25,225	25,540
85-89	7,735	7,880	8,215	8,695	9,190	10,080	10,415	10,720	11,065	11,430	11,885	12,350	12,905	13,360
90+	3,035	3,070	3,105	3,100	3,085	3,305	3,365	3,515	3,620	3,710	3,740	3,795	3,890	4,005

MALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	152,040	153,560	154,845	155,960	156,930	157,820	158,655	159,500	160,385	161,370	162,845	164,520	166,360	168,360
5-9	149,245	153,045	156,405	159,265	161,580	163,360	164,870	166,160	167,290	168,225	169,265	170,175	171,080	172,030
10-14	136,415	140,325	144,400	148,580	152,795	157,000	160,815	164,170	167,005	169,335	171,285	172,885	174,255	175,450
15-19	124,930	127,985	131,070	134,820	139,515	143,245	147,155	151,205	155,305	159,615	164,055	168,070	171,610	174,605
20-24	133,895	133,645	134,295	134,625	134,670	136,805	139,870	142,955	146,690	151,370	155,640	159,905	164,320	168,880
25-29	150,555	151,190	151,185	150,630	150,700	150,495	150,420	150,865	151,200	151,240	153,645	156,980	160,445	164,570
30-34	160,990	161,630	162,725	164,120	164,830	165,730	166,345	166,340	165,785	165,860	165,860	165,790	166,225	166,610
35-39	162,175	164,675	166,790	168,770	170,495	171,800	172,450	173,535	174,935	175,600	176,645	177,335	177,380	176,835
40-44	153,625	157,445	161,430	164,500	167,140	169,495	171,975	174,065	176,025	177,750	179,270	180,000	181,120	182,575
45-49	143,350	146,000	148,810	151,715	154,355	157,915	161,710	165,670	168,710	171,355	174,015	176,580	178,760	180,795
50-54	142,665	140,205	138,380	138,920	141,910	144,830	147,455	150,220	153,100	155,725	159,755	163,625	167,665	170,790
55-59	144,930	146,610	147,475	146,720	144,430	141,925	139,535	137,790	138,365	141,310	145,025	147,720	150,535	153,470
60-64	124,315	129,240	133,370	136,810	139,850	141,675	143,320	144,170	143,445	141,245	140,255	137,980	136,310	136,900
65-69	92,985	96,620	101,610	106,945	112,355	117,825	122,445	126,295	129,515	132,355	136,040	137,700	138,595	137,975
70-74	65,175	69,720	73,765	78,160	82,185	84,625	87,970	92,520	97,390	102,310	109,105	113,515	117,215	120,335
75-79	41,305	43,630	46,000	48,330	50,850	55,215	59,110	62,525	66,235	69,620	74,205	77,295	81,460	85,920
80-84	25,890	26,365	27,035	27,855	28,970	30,310	32,070	33,825	35,540	37,410	43,270	46,460	49,295	52,375
85-89	13,710	13,975	14,200	14,380	14,585	14,795	15,090	15,495	16,000	16,675	19,095	20,295	21,500	22,685
90+	4,065	4,185	4,270	4,420	4,510	4,560	4,635	4,690	4,760	4,830	5,565	5,725	5,920	6,165

MALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	170,570	172,940	175,530	178,385	181,485	184,790	188,220	191,600	195,510	199,335	203,200	207,175	211,025	214,785
5-9	173,080	174,630	176,410	178,375	180,510	182,870	185,400	188,170	191,210	194,520	198,055	201,725	205,560	209,535
10-14	176,445	177,530	178,490	179,445	180,435	181,535	183,140	184,995	187,045	189,280	191,745	194,390	197,285	200,465
15-19	177,070	179,140	180,835	182,285	183,550	184,605	185,740	186,755	187,760	188,800	189,950	191,610	193,545	195,685
20-24	173,465	178,310	182,735	186,650	189,980	192,730	195,035	196,935	198,550	199,960	201,140	202,385	203,510	204,620
25-29	169,710	174,565	179,385	184,340	189,465	194,645	200,080	205,100	209,585	213,435	216,625	219,300	221,505	223,380
30-34	166,685	169,090	172,650	176,445	180,925	186,480	191,855	197,175	202,635	208,265	213,975	219,925	225,525	230,540
35-39	176,875	176,885	176,820	177,260	177,670	177,780	180,165	183,890	187,925	192,655	198,505	204,250	209,940	215,755
40-44	183,315	184,395	185,145	185,235	184,705	184,730	184,745	184,690	185,130	185,570	185,710	188,115	191,920	196,120
45-49	182,595	184,180	184,975	186,135	187,635	188,435	189,550	190,350	190,480	189,980	190,000	190,030	189,995	190,445
50-54	173,510	176,230	178,860	181,105	183,205	185,060	186,700	187,555	188,745	190,290	191,145	192,295	193,140	193,315
55-59	156,150	160,215	164,150	168,245	171,455	174,235	177,015	179,710	182,020	184,175	186,095	187,795	188,710	189,950
60-64	139,835	143,565	146,320	149,170	152,140	154,870	158,945	162,920	167,050	170,320	173,160	175,995	178,740	181,110
65-69	135,940	135,055	132,940	131,395	132,035	134,935	138,605	141,335	144,165	147,105	149,745	153,685	157,525	161,520
70-74	123,110	126,670	128,350	129,320	128,870	127,095	126,395	124,535	123,205	123,925	126,645	130,090	132,655	135,305
75-79	90,435	96,625	100,720	104,195	107,165	109,830	113,210	114,910	115,975	115,765	114,170	113,545	111,870	110,680
80-84	55,210	59,015	61,650	65,150	68,905	72,725	77,910	81,425	84,455	87,085	89,255	91,995	93,380	94,245
85-89	23,975	27,845	30,025	31,985	34,120	36,110	38,750	40,635	43,105	45,765	48,300	51,745	54,080	56,090
90+	6,470	7,465	7,985	8,530	9,065	9,655	11,290	12,260	13,150	14,125	14,950	16,040	16,825	17,845

MALE AGE	2045	2046	2047	2048	2049	2050
0-4	218,420	221,895	225,255	228,490	231,585	234,535
5-9	213,630	217,840	222,040	226,180	230,225	234,140
10-14	203,925	207,620	211,465	215,485	219,645	223,940
15-19	198,020	200,590	203,355	206,375	209,695	213,305
20-24	205,760	207,015	208,760	210,870	213,195	215,730
25-29	225,005	226,380	227,785	229,080	230,340	231,630
30-34	234,860	238,460	241,475	243,970	246,085	247,915
35-39	221,760	227,850	234,185	240,190	245,595	250,265
40-44	201,035	207,100	213,115	219,070	225,155	231,425
45-49	190,915	191,085	193,490	197,370	201,695	206,740
50-54	192,845	192,880	192,935	192,925	193,395	193,895
55-59	191,540	192,460	193,655	194,550	194,780	194,360
60-64	183,330	185,310	187,075	188,065	189,360	191,005
65-69	164,680	167,430	170,165	172,820	175,115	177,260
70-74	138,065	140,545	144,240	147,845	151,600	154,565
75-79	111,325	113,770	116,865	119,165	121,550	124,025
80-84	94,075	92,780	92,270	90,910	89,940	90,465
85-89	57,840	59,275	61,100	62,015	62,590	62,480
90+	18,945	19,995	21,420	22,390	23,220	23,945

FEMALE AGE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-4	97,055	99,870	103,100	107,085	110,595	114,315	118,160	122,145	126,125	130,120	133,710	136,900	139,590	141,810
5-9	101,140	101,365	101,670	102,005	104,385	106,980	110,050	113,490	117,570	121,100	124,795	128,625	132,595	136,555
10-14	110,390	109,875	109,190	109,030	108,265	108,215	108,660	109,095	109,510	111,885	114,480	117,550	120,980	125,030
15-19	111,815	113,020	114,560	115,305	116,265	116,910	116,545	115,980	115,870	115,105	115,055	115,500	115,955	116,370
20-24	116,400	118,580	120,220	121,945	123,345	124,265	125,745	127,460	128,305	129,260	129,895	129,530	128,960	128,855
25-29	115,020	118,550	122,230	125,765	129,260	132,885	135,485	137,430	139,300	140,700	141,585	143,080	144,790	145,630
30-34	115,865	118,190	120,675	123,345	126,715	130,040	133,980	137,950	141,625	145,115	148,700	151,330	153,240	155,115
35-39	121,260	119,005	118,660	120,845	123,200	126,035	128,675	131,375	134,155	137,505	140,810	144,745	148,720	152,365
40-44	137,215	137,830	136,885	133,840	130,685	127,445	125,410	125,220	127,480	129,835	132,620	135,245	137,945	140,720
45-49	125,730	129,530	133,070	136,065	138,635	140,795	141,550	140,715	137,750	134,610	131,335	129,345	129,150	131,400
50-54	100,550	105,855	111,385	117,330	122,820	127,765	131,845	135,250	138,250	140,800	142,830	143,585	142,795	139,840
55-59	79,795	84,755	89,980	94,670	97,450	101,425	106,755	112,265	118,135	123,555	128,230	132,030	135,575	138,520
60-64	58,570	61,630	64,660	68,160	74,200	79,650	84,530	89,640	94,240	96,960	100,700	105,850	111,210	116,920
65-69	48,665	49,825	51,070	52,805	54,950	57,790	60,750	63,700	67,070	72,870	78,025	82,690	87,560	91,945
70-74	43,630	44,050	44,420	44,920	45,470	46,390	47,515	48,715	50,365	52,390	55,015	57,790	60,535	63,695
75-79	36,050	36,570	37,375	38,175	38,810	39,590	39,995	40,375	40,865	41,375	42,140	43,165	44,270	45,750
80-84	27,440	28,290	28,625	29,055	29,165	30,020	30,500	31,225	31,945	32,495	32,980	33,280	33,630	34,070
85-89	15,430	15,690	16,460	17,205	18,160	19,330	19,980	20,225	20,585	20,720	21,110	21,465	22,010	22,560
90+	8,085	8,230	8,255	8,230	8,240	8,455	8,630	8,985	9,070	9,280	9,270	9,340	9,430	9,545

FEMALE AGE	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-4	143,470	144,900	146,125	147,160	148,075	148,915	149,705	150,495	151,345	152,255	153,650	155,230	156,965	158,855
5-9	140,545	144,130	147,325	150,000	152,200	153,865	155,285	156,505	157,550	158,465	159,875	160,770	161,620	162,530
10-14	128,560	132,240	136,105	140,045	144,030	147,990	151,590	154,755	157,440	159,635	161,460	162,970	164,260	165,370
15-19	118,735	121,320	124,400	127,825	131,885	135,400	139,090	142,930	146,880	150,855	154,545	158,305	161,635	164,470
20-24	128,095	128,055	128,490	128,950	129,355	131,710	134,305	137,375	140,790	144,850	148,245	152,240	156,435	160,760
25-29	146,590	147,200	146,855	146,290	146,180	145,410	145,375	145,810	146,265	146,665	149,840	152,830	156,275	160,115
30-34	156,515	157,395	158,885	160,590	161,435	162,380	163,010	162,635	162,085	161,955	162,900	163,070	163,520	164,020
35-39	155,830	159,425	162,030	163,965	165,825	167,225	168,100	169,580	171,280	172,125	173,840	174,585	174,270	173,700
40-44	144,065	147,340	151,275	155,225	158,875	162,315	165,920	168,525	170,435	172,295	173,845	174,795	176,310	178,075
45-49	133,720	136,530	139,125	141,810	144,560	147,900	151,180	155,085	159,000	162,645	166,080	169,775	172,480	174,470
50-54	136,760	133,525	131,545	131,375	133,590	135,925	138,685	141,265	143,940	146,680	150,080	153,410	157,380	161,375
55-59	141,030	143,010	143,750	142,955	140,055	137,015	133,860	131,930	131,770	133,950	136,565	139,355	141,975	144,685
60-64	122,140	126,695	130,390	133,800	136,670	139,090	141,015	141,710	140,925	138,100	135,785	132,690	130,770	130,605
65-69	94,545	98,125	103,090	108,220	113,685	118,695	123,035	126,555	129,830	132,580	135,380	137,255	137,950	137,200
70-74	69,150	73,955	78,300	82,640	86,900	89,370	92,740	97,380	102,175	107,295	112,395	116,540	119,905	123,045
75-79	47,605	49,980	52,480	54,965	57,820	62,765	67,115	71,010	75,075	78,715	81,560	84,700	89,000	93,440
80-84	34,515	35,170	36,035	36,960	38,240	39,780	41,795	43,870	45,935	48,330	53,415	57,190	60,580	64,125
85-89	22,940	23,270	23,510	23,795	24,160	24,490	24,990	25,610	26,300	27,270	29,325	30,880	32,490	34,090
90+	9,570	9,715	9,800	9,990	10,125	10,115	10,210	10,260	10,405	10,575	11,415	11,690	12,030	12,400

FEMALE AGE	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
0-4	160,940	163,175	165,620	168,310	171,240	174,360	177,585	180,970	184,475	188,080	191,785	195,475	199,110	202,655
5-9	163,510	164,970	166,655	168,505	170,525	172,755	175,145	177,755	180,630	183,755	187,085	190,560	194,185	197,935
10-14	166,335	167,790	168,755	169,655	170,605	171,630	173,145	174,900	176,835	178,950	181,275	183,780	186,510	189,515
15-19	166,795	168,720	170,315	171,675	172,850	173,865	175,370	176,405	177,350	178,345	179,415	180,975	182,800	184,820
20-24	165,125	169,205	173,330	177,030	180,200	182,805	184,965	186,760	188,285	189,595	190,730	192,340	193,520	194,575
25-29	164,650	168,610	173,095	177,850	182,765	187,740	192,440	197,145	201,435	205,135	208,205	210,750	212,880	214,650
30-34	164,480	167,705	171,050	174,855	179,115	184,110	188,615	193,505	198,895	204,390	209,960	215,270	220,580	225,425
35-39	173,540	174,565	174,720	175,180	175,720	176,215	179,470	183,035	187,080	191,615	196,915	201,780	207,080	212,750
40-44	179,000	180,755	181,585	181,310	180,740	180,565	181,585	181,785	182,265	182,825	183,355	186,630	190,330	194,525
45-49	176,390	178,000	179,000	180,550	182,365	183,350	185,135	186,025	185,790	185,225	185,040	186,065	186,305	186,800
50-54	165,100	168,615	172,380	175,170	177,230	179,200	180,860	181,910	183,495	185,355	186,390	188,205	189,145	188,950
55-59	147,460	150,865	154,255	158,260	162,305	166,080	169,640	173,450	176,300	178,410	180,420	182,125	183,215	184,825
60-64	132,740	135,345	138,125	140,745	143,445	146,215	149,600	152,985	156,965	160,995	164,765	168,325	172,125	174,990
65-69	134,470	132,230	129,235	127,385	127,240	129,340	131,890	134,620	137,190	139,840	142,540	145,840	149,140	153,020
70-74	125,690	128,365	130,195	130,890	130,215	127,660	125,570	122,760	121,035	120,930	122,925	125,350	127,940	130,385
75-79	98,190	102,925	106,790	109,950	112,900	115,405	117,930	119,690	120,405	119,860	117,510	115,585	113,000	111,410
80-84	67,315	69,830	72,805	76,380	80,285	84,460	88,635	92,070	94,895	97,555	99,715	101,900	103,420	104,040
85-89	35,950	39,820	42,725	45,380	48,115	50,615	52,620	54,825	57,790	60,870	64,040	67,205	69,810	71,955
90+	12,905	13,930	14,725	15,550	16,380	17,335	19,270	20,755	22,110	23,540	24,780	25,740	26,820	28,270

FEMALE AGE	2045	2046	2047	2048	2049	2050
0-4	206,090	209,370	212,540	215,590	218,510	
5-9	201,805	205,780	209,750	213,660	217,460	
10-14	192,785	196,280	199,915	203,710	207,645	
15-19	187,020	189,450	192,060	194,905	198,040	
20-24	195,665	196,835	198,505	200,480	202,680	
25-29	216,185	217,515	219,290	220,690	221,920	
30-34	229,660	233,195	236,125	238,560	240,615	
35-39	218,625	224,595	230,310	235,985	241,240	
40-44	199,230	204,720	209,810	215,325	221,205	
45-49	187,385	187,940	191,225	195,015	199,315	
50-54	188,400	188,225	189,255	189,535	190,045	
55-59	186,715	187,795	189,635	190,620	190,470	
60-64	177,115	179,135	180,850	181,970	183,580	
65-69	156,950	160,625	164,095	167,795	170,590	
70-74	132,905	135,470	138,610	141,745	145,435	
75-79	111,315	113,150	115,385	117,770	120,015	
80-84	103,565	101,535	99,870	97,635	96,265	
85-89	73,965	75,605	77,260	78,415	78,885	
90+	29,780	31,325	32,875	34,150	35,200	

Table 2.1: Income statistics 2004 - 2002 tax year

Number		Under $10,000	$10,000-$15,000	$15,000-$20,000	$20,000-$25,000	$25,000-$30,000	$30,000-$35,000	$35,000-$40,000	$40,000-$45,000	$45,000-$50,000	$50,000-$100,000	$100,000 and over	Total
MALE	<24	77,160	28,350	18,430	14,550	10,420	7,660	6,260	4,170	2,900	6,390	260	176,550
	25-34	21,860	15,000	13,880	15,070	16,340	16,470	17,480	14,100	15,100	53,130	6,760	205,190
	35-44	23,010	11,430	11,540	12,400	12,360	16,530	15,980	18,190	14,930	81,920	24,980	243,270
	45-54	19,150	11,100	7,450	10,700	9,970	11,050	11,410	11,890	12,450	74,050	30,720	209,940
	55-64	15,600	11,080	5,810	7,160	7,250	8,370	8,570	7,800	7,180	36,000	15,570	130,390
	65-74	5,870	12,530	14,740	9,800	8,110	6,800	5,160	4,940	4,170	12,770	3,910	88,800
	75+	3,100	11,200	14,390	7,490	5,020	4,690	3,030	1,700	980	5,760	1,740	59,100
	Total	165,750	100,690	86,240	77,170	69,470	71,570	67,890	62,790	57,710	270,020	83,940	1,113,240
FEMALE	<24	92,760	30,490	16,960	10,750	6,490	4,970	1,820	890	780	1,140	50	167,100
	25-34	58,000	24,490	19,120	19,390	18,990	16,400	12,910	8,570	7,920	17,470	1,290	204,550
	35-44	67,070	25,020	20,760	19,730	20,590	18,920	14,870	12,540	9,520	34,610	4,860	248,490
	45-54	44,390	18,920	16,650	16,900	15,940	17,060	13,310	11,890	8,980	38,380	5,780	208,200
	55-64	41,460	17,790	12,580	11,210	9,310	9,780	7,240	6,010	4,510	15,800	2,380	138,070
	65-74	17,670	21,830	17,220	7,880	4,760	4,910	2,400	2,650	1,640	4,580	1,380	86,920
	75+	8,770	20,310	28,960	9,500	4,810	3,470	2,180	1,330	1,360	4,080	960	85,730
	Total	330,120	158,850	132,250	95,360	80,890	75,510	54,730	43,880	34,710	116,060	16,700	1,139,060
TOTAL	<24	169,920	58,840	35,390	25,300	16,910	12,630	8,080	5,060	3,680	7,530	310	343,650
	25-34	79,860	39,490	33,000	34,460	35,330	32,870	30,390	22,670	23,020	70,600	8,050	409,740
	35-44	90,080	36,450	32,300	32,130	32,950	35,450	30,860	30,730	24,450	116,530	29,840	491,760
	45-54	63,540	30,020	24,100	27,600	25,910	28,110	24,720	23,780	21,430	112,430	36,500	418,140
	55-64	57,060	28,870	18,390	18,370	16,560	18,150	15,810	13,810	11,690	51,800	17,950	268,460
	65-74	23,540	34,360	31,960	17,680	12,870	11,710	7,560	7,590	5,810	17,350	5,290	175,720
	75+	11,870	31,510	43,350	16,990	9,830	8,160	5,210	3,030	2,340	9,840	2,700	144,830
	Total	495,870	259,540	218,490	172,530	150,360	147,080	122,620	106,670	92,420	386,080	100,640	2,252,300

Canada Revenue Agency - 2002 (Table 06)

Total income assessed		Under $10,000	$10,000-$15,000	$15,000-$20,000	$20,000-$25,000	$25,000-$30,000	$30,000-$35,000	$35,000-$40,000	$40,000-$45,000	$45,000-$50,000	$50,000-$100,000	$100,000 and over	Total
MALE	<24	344,734	349,532	321,287	327,315	286,408	248,891	234,085	176,676	137,674	394,116	54,184	2,874,902
	25-34	109,174	185,574	241,953	338,208	451,470	533,207	655,459	596,817	716,426	3,540,113	1,099,535	8,467,936
	35-44	88,002	140,871	201,838	278,571	340,731	534,098	598,868	770,295	708,408	5,639,352	4,886,424	14,187,458
	45-54	64,229	133,744	130,457	239,641	275,323	359,179	426,648	505,125	589,147	5,222,197	6,741,288	14,686,978
	55-64	62,445	130,821	102,641	160,388	200,789	271,733	321,860	333,193	341,882	2,465,024	3,703,065	8,093,841
	65-74	26,727	158,422	250,591	222,329	222,236	221,853	193,891	209,007	198,396	820,071	1,320,772	3,844,295
	75+	14,072	148,226	244,416	166,183	138,091	152,223	113,259	72,207	45,784	372,530	537,800	2,004,791
	Total	709,383	1,247,190	1,493,183	1,732,635	1,915,048	2,321,184	2,544,070	2,663,320	2,737,717	18,453,403	18,343,068	54,160,201
FEMALE	<24	420,568	375,000	294,786	239,878	176,262	160,574	68,134	37,555	37,247	67,546	7,776	1,885,326
	25-34	187,291	301,937	334,988	432,900	521,052	529,766	482,429	364,693	375,389	1,099,925	200,786	4,831,156
	35-44	248,556	311,019	360,764	440,950	563,708	613,756	551,769	531,532	450,237	2,250,454	830,242	7,152,987
	45-54	144,768	226,350	290,838	380,495	439,405	552,209	498,568	504,580	426,431	2,532,107	1,069,478	7,065,229
	55-64	182,733	218,921	220,218	[illegible],754	255,020	317,449	270,792	253,578	213,622	1,044,912	494,617	3,726,616
	65-74	119,626	280,967	294,163	[illegible]5,086	129,794	158,798	88,762	111,820	77,602	295,701	329,355	2,061,674
	75+	57,764	274,740	484,606	211,005	130,870	111,207	82,133	56,451	64,672	262,462	215,713	1,951,623
	Total	1,361,306	1,988,934	2,280,363	2,135,068	2,216,111	2,443,759	2,042,587	1,860,209	1,645,200	7,553,107	3,147,967	28,674,611
TOTAL	<24	765,302	724,532	616,073	567,193	462,670	409,465	302,219	214,231	174,921	461,662	61,960	4,760,228
	25-34	296,465	487,511	576,941	771,108	972,522	1,062,973	1,137,888	961,510	1,091,815	4,640,038	1,300,321	13,299,092
	35-44	336,558	451,890	562,602	719,521	904,439	1,147,854	1,150,637	1,301,827	1,158,645	7,889,806	5,716,666	21,340,445
	45-54	208,997	360,094	421,295	620,136	714,728	911,388	925,216	1,009,705	1,015,578	7,754,304	7,810,766	21,752,207
	55-64	245,178	349,742	322,859	415,142	455,809	589,182	592,652	586,771	555,504	3,509,936	4,197,682	11,820,457
	65-74	146,353	439,389	544,754	397,415	352,030	380,651	282,653	320,827	275,998	1,115,772	1,650,127	5,905,969
	75+	71,836	422,966	729,022	377,188	268,961	263,430	195,392	128,658	110,456	634,992	753,513	3,956,414
	Total	2,070,689	3,236,124	3,773,546	3,867,703	4,131,159	4,764,943	4,586,657	4,523,529	4,382,917	26,006,510	21,491,035	82,834,812

Canada Revenue Agency - 2002 (Table 06)

Total income assessed		Under $10,000	$10,000-$15,000	$15,000-$20,000	$20,000-$25,000	$25,000-$30,000	$30,000-$35,000	$35,000-$40,000	$40,000-$45,000	$45,000-$50,000	$50,000-$100,000	$100,000 and over	Total
MALE	<24	340,007	334,278	310,504	316,671	276,221	236,261	223,843	171,961	130,994	367,443	49,986	2,758,169
	25-34	99,760	153,264	223,300	314,191	430,836	505,004	616,429	557,661	663,442	3,236,494	985,698	7,786,079
	35-44	67,789	117,091	179,834	250,068	311,536	483,757	547,774	706,415	655,757	5,092,515	4,357,467	12,770,003
	45-54	68,232	99,233	115,009	212,762	243,667	323,605	391,542	458,439	531,522	4,669,134	6,042,969	13,156,114
	55-64	63,363	90,247	87,440	142,053	177,737	250,498	295,853	305,321	314,104	2,180,580	3,279,177	7,186,373
	65-74	24,383	106,584	203,305	201,954	213,033	207,120	177,062	199,192	183,874	734,293	1,199,726	3,450,526
	75+	12,223	95,931	207,499	157,801	133,993	147,059	107,175	68,477	43,687	343,893	458,047	1,775,785
	Total	675,757	996,628	1,326,891	1,595,500	1,787,023	2,153,304	2,359,678	2,467,466	2,523,360	16,624,352	16,373,070	48,883,049
FEMALE	<24	387,009	349,357	283,755	229,181	168,849	152,874	63,008	33,774	35,311	61,867	6,341	1,771,326
	25-34	167,978	247,136	306,526	402,114	480,124	488,125	441,943	332,968	343,834	984,409	178,920	4,374,077
	35-44	217,248	255,886	330,525	409,381	514,853	558,665	503,688	478,278	399,485	1,980,733	723,408	6,372,150
	45-54	129,024	171,142	266,418	346,983	404,805	500,248	455,772	457,128	381,162	2,218,254	949,972	6,280,908
	55-64	152,210	169,205	204,427	235,322	234,089	290,177	243,526	232,896	191,982	914,556	420,211	3,288,610
	65-74	98,197	198,368	245,592	165,595	124,088	151,036	84,654	105,289	69,680	267,086	278,493	1,788,078
	75+	52,319	160,855	378,619	197,261	123,531	103,416	79,669	55,626	61,766	245,889	191,242	1,650,193
	Total	1,203,904	1,551,949	2,015,862	1,985,837	2,050,339	2,244,541	1,872,260	1,695,959	1,483,220	6,672,794	2,748,587	25,525,342
TOTAL	<24	727,016	683,635	594,259	545,852	445,070	389,135	286,851	205,735	166,305	429,310	56,327	4,529,495
	25-34	267,738	400,400	529,826	716,305	910,960	993,129	1,058,372	890,629	1,007,276	4,220,903	1,164,618	12,160,156
	35-44	285,037	372,977	510,359	659,449	826,389	1,042,422	1,051,462	1,184,693	1,055,242	7,073,248	5,080,875	19,142,153
	45-54	197,256	270,375	381,427	559,745	648,472	823,853	847,314	915,567	912,684	6,887,388	6,992,941	19,437,022
	55-64	215,582	259,452	291,867	377,375	411,826	540,675	539,379	538,217	506,086	3,095,136	3,699,388	10,474,983
	65-74	122,580	304,952	448,897	367,549	337,121	358,156	261,716	304,481	253,554	1,001,379	1,478,219	5,238,604
	75+	64,542	256,786	586,118	355,062	257,524	250,475	186,844	124,103	105,453	589,782	649,289	3,425,978
	Total	1,879,751	2,548,577	3,342,753	3,581,337	3,837,362	4,397,845	4,231,938	4,163,425	4,006,600	23,297,146	19,121,657	74,408,391

Canada Revenue Agency - 2002 (Table 06)

Total tax payable		Under $10,000	$10,000-$15,000	$15,000-$20,000	$20,000-$25,000	$25,000-$30,000	$30,000-$35,000	$35,000-$40,000	$40,000-$45,000	$45,000-$50,000	$50,000-$100,000	$100,000 and over	Total
MALE	<24	1,416	10,248	20,906	32,476	35,498	34,609	38,035	32,128	25,525	82,166	15,030	328,037
	25-34	1,349	5,950	14,849	32,588	55,525	74,678	101,342	95,759	129,266	735,245	299,251	1,545,802
	35-44	3,758	5,787	14,785	26,745	40,745	71,459	88,644	122,618	125,115	1,155,217	1,337,704	2,992,577
	45-54	1,147	4,411	9,390	25,091	31,866	48,232	61,901	82,282	99,201	1,062,657	1,868,856	3,295,034
	55-64	541	3,405	6,694	15,078	22,269	34,525	47,940	51,482	58,709	478,185	1,012,473	1,731,301
	65-74	87	136	3,321	9,769	17,436	22,100	24,508	32,658	34,547	166,377	380,567	691,506
	75+	0	296	2,940	6,163	9,997	15,539	14,164	10,631	7,381	78,433	143,233	288,777
	Total	8,298	30,233	72,885	147,910	213,336	301,142	376,534	427,558	479,744	3,758,280	5,057,114	10,873,034
FEMALE	<24	1,110	9,506	18,210	22,676	19,978	19,861	10,024	6,170	6,399	12,302	1,838	128,074
	25-34	1,212	8,770	20,448	37,966	59,041	70,485	68,981	60,006	64,130	218,535	52,262	661,836
	35-44	1,601	10,176	22,343	42,132	63,047	78,076	75,992	80,715	72,856	432,430	213,354	1,092,722
	45-54	1,322	6,470	19,172	35,321	50,930	69,666	71,241	79,031	70,860	488,510	265,964	1,158,487
	55-64	781	5,739	15,861	26,647	30,235	42,245	38,653	41,452	35,961	201,136	124,207	562,917
	65-74	126	964	6,216	10,467	12,610	18,983	12,666	16,656	11,851	60,425	81,188	232,152
	75+	0	367	5,777	11,976	9,840	10,772	10,937	8,433	11,257	54,630	55,286	179,275
	Total	6,152	41,992	108,027	187,185	245,681	310,088	288,494	292,463	273,314	1,467,968	794,099	4,015,463
TOTAL	<24	2,526	19,754	39,116	55,152	55,476	54,470	48,059	38,298	31,924	94,468	16,868	456,111
	25-34	2,561	14,720	35,297	70,554	114,566	145,163	170,323	155,765	193,396	953,780	351,513	2,207,638
	35-44	5,359	15,963	37,128	68,877	103,792	149,535	164,636	203,333	197,971	1,587,647	1,551,058	4,085,299
	45-54	2,469	10,881	28,562	60,412	82,796	117,898	133,142	161,313	170,061	1,551,167	2,134,820	4,453,521
	55-64	1,322	9,144	22,555	41,725	52,504	76,770	86,593	92,934	94,670	679,321	1,136,680	2,294,218
	65-74	213	1,100	9,537	20,236	30,046	41,083	37,174	49,314	46,398	226,802	461,755	923,658
	75+	0	663	8,717	18,139	19,837	26,311	25,101	19,064	18,638	133,063	198,519	468,052
	Total	14,450	72,225	180,912	335,095	459,017	611,230	665,028	720,021	753,058	5,226,248	5,851,213	14,888,497

Canada Revenue Agency - 2002 (Table 06)

Table 2.2: Gross Income per Person - 2006

Number of Persons by Age-Band and Gross Income-Band

	Gross income min	0	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	
	Gross income max	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	+	Total
	Age														
Female	under 24	60,017	81,767	31,501	21,003	13,180	8,900	5,714	4,401	2,127	1,077	2,156	170	118	232,130
	25-34	22,798	54,957	21,830	19,974	17,552	17,665	17,355	15,033	12,401	9,255	25,317	4,100	3,248	241,485
	35-44	11,605	56,963	21,214	18,874	16,815	16,346	16,947	15,599	12,869	11,010	34,897	9,407	8,323	250,870
	45-54	10,986	45,689	17,986	17,594	16,531	16,555	15,750	16,835	13,852	12,252	40,843	15,467	11,326	251,625
	55-64	2,893	41,053	18,198	14,983	11,940	10,743	9,156	9,609	7,502	6,345	18,343	5,948	4,938	161,740
	65-74	4,163	15,539	21,336	18,123	10,818	5,968	4,773	3,799	2,453	2,359	4,799	1,233	1,671	97,035
	75+	74	7,668	18,632	26,665	15,824	6,704	4,109	2,907	1,880	1,330	4,254	1,094	1,190	92,330
Male	under 24	63,801	67,926	27,129	20,483	14,989	12,147	9,086	6,727	5,691	4,291	9,557	1,359	751	243,940
	25-34	40,042	19,252	12,890	13,093	12,921	13,827	14,804	14,920	15,664	13,874	52,578	19,144	14,516	257,525
	35-44	27,306	19,602	9,000	9,530	9,806	10,285	10,257	13,652	13,348	14,437	50,020	30,086	37,151	263,540
	45-54	18,112	19,642	9,819	9,226	8,415	10,494	9,880	10,929	11,239	11,612	55,216	35,346	51,556	261,485
	55-64	3,201	16,752	10,088	8,919	6,554	7,532	7,612	8,765	8,958	8,479	33,843	16,959	25,688	163,350
	65-74	1,030	5,551	10,339	13,410	10,798	8,321	7,037	5,769	4,804	4,480	12,649	3,176	4,482	91,845
	75+	629	2,980	9,251	13,090	9,398	5,811	4,671	3,838	2,480	1,457	5,170	1,423	1,997	62,195

Average Income per Person by Age-Band and Gross Income-Band

	Gross income min	0	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	
	Gross income max	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	+	Total
	Age														
Female	under 24	0	4,434	11,987	16,914	22,124	27,114	32,076	37,267	41,845	46,829	58,359	84,804	140,101	
	25-34	0	5,825	24,665	34,434	44,968	54,608	64,812	74,555	84,472	94,365	118,567	173,339	278,747	0
	35-44	0	7,008	24,633	34,529	44,673	54,682	64,669	74,869	84,084	94,235	121,242	173,101	318,777	0
	45-54	0	6,043	24,019	34,034	45,013	55,009	65,114	74,734	84,659	94,718	122,405	170,628	343,573	0
	55-64	0	8,591	24,373	34,250	45,065	55,320	64,703	74,929	84,563	94,239	120,497	171,732	365,612	0
	65-74	0	13,386	25,677	34,447	43,188	53,814	64,619	73,600	84,205	93,939	118,966	170,840	480,333	0
	75+	0	6,207	13,720	17,264	21,113	26,760	31,901	36,915	42,396	47,470	59,757	85,278	224,887	0
Male	under 24	0	4,393	12,110	17,057	22,329	27,389	32,463	37,481	42,329	47,094	58,934	86,372	155,964	
	25-34	0	9,772	24,844	34,639	44,981	54,987	65,284	74,744	85,013	94,482	121,186	171,915	296,881	0
	35-44	0	7,270	24,738	34,755	45,082	54,948	65,117	74,622	84,862	94,886	123,172	172,083	373,786	0
	45-54	0	6,181	24,453	33,779	45,402	54,772	65,230	75,049	84,852	94,917	123,425	173,852	421,394	0
	55-64	0	7,787	24,100	33,112	45,468	54,869	65,419	74,966	85,134	95,228	123,075	172,679	469,510	0
	65-74	0	8,984	25,911	34,448	44,184	54,877	64,777	74,860	84,976	94,528	119,634	170,259	674,855	0
	75+	0	4,414	13,614	17,389	21,611	27,079	32,441	37,146	42,113	47,093	61,880	84,841	313,193	0

Table 2.3: Taxable Income per Person – 2006

Number of Persons by Age-Band and Taxable Income-Band

	Gross income min	**0**	**0**	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	
	Gross income max	**0**	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	**+**	**Total**
	Age														
Female	under 24	60,017	88,705	30,517	17,401	13,060	8,189	5,776	4,391	1,640	500	1,720	136	77	232,130
	25-34	22,798	62,011	25,761	15,464	17,847	19,759	17,474	15,286	11,289	8,073	20,003	3,836	1,863	241,485
	35-44	11,605	65,142	22,953	15,209	16,823	19,733	18,074	14,800	13,924	11,247	27,952	8,204	5,205	250,870
	45-54	10,966	57,022	16,689	13,571	18,563	16,569	19,908	15,179	14,751	12,831	37,383	10,913	7,281	251,625
	55-64	2,893	52,051	16,399	9,623	12,671	11,103	10,567	10,137	5,899	6,963	15,671	4,750	3,013	161,740
	65-74	4,163	33,263	14,814	13,472	6,425	5,104	5,220	2,977	3,525	2,096	3,615	926	1,436	97,035
	75+	74	29,595	18,754	15,567	8,050	5,317	3,921	1,840	1,520	1,790	3,956	889	1,056	92,330
Male	under 24	63,801	68,825	20,582	19,336	14,890	12,029	9,626	6,452	5,320	3,393	8,939	1,226	521	243,940
	25-34	40,042	22,523	15,944	10,966	13,936	12,861	16,380	16,936	16,986	15,147	49,144	16,731	9,926	257,525
	35-44	27,366	23,355	9,886	9,550	11,016	10,189	14,421	13,708	14,997	14,187	60,033	26,248	26,582	263,540
	45-54	18,112	21,879	13,861	6,872	11,208	11,491	10,585	10,567	13,826	14,067	55,723	33,534	39,770	261,485
	55-64	3,201	22,965	10,745	5,824	7,637	8,603	6,882	9,862	9,689	8,472	34,525	14,402	20,546	163,350
	65-74	1,030	15,567	9,525	10,356	8,210	6,748	8,695	5,115	3,884	6,971	9,629	2,240	3,875	91,845
	75+	629	12,927	5,936	11,808	5,869	4,876	4,894	4,052	1,959	1,261	5,120	1,053	1,811	62,195

Average Income per Person by Age-Band and Taxable Income-Band

	Gross income min	0	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	
	Gross income max	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	+	Total
	Age														
Female	under 24	0	4,481	12,169	17,085	22,043	26,931	32,050	37,018	41,995	47,171	56,761	86,369	133,163	
	25-34	0	6,702	23,825	35,963	44,913	54,689	64,562	74,301	84,331	94,921	113,994	173,094	293,382	0
	35-44	0	7,640	24,200	35,638	44,747	54,608	64,679	74,284	84,111	94,136	117,619	171,570	333,599	0
	45-54	0	7,831	23,242	36,187	44,963	55,129	64,780	74,623	84,704	94,445	119,655	170,967	369,541	0
	55-64	0	9,384	23,923	36,453	45,089	54,795	64,898	74,306	84,530	94,174	117,789	171,665	393,745	0
	65-74	0	14,523	24,822	32,874	45,455	54,244	64,542	73,580	84,616	93,436	118,691	180,221	436,950	0
	75+	0	7,745	13,079	15,706	22,675	27,129	31,734	37,782	42,336	47,358	58,761	85,267	213,190	0
Male	under 24	0	4,400	12,069	17,109	22,283	27,336	32,405	37,342	42,302	47,572	57,035	85,973	165,883	
	25-34	0	10,306	23,829	35,760	44,976	55,359	65,186	74,923	84,815	94,895	119,100	172,253	303,839	0
	35-44	0	7,529	24,409	36,504	45,103	55,389	64,989	74,802	84,994	94,425	121,417	172,781	377,405	0
	45-54	0	7,069	23,322	35,870	45,073	55,014	65,607	75,162	84,871	94,822	121,930	172,726	433,485	0
	55-64	0	9,970	22,646	35,763	45,284	55,267	66,171	75,012	85,107	95,342	119,666	171,597	472,705	0
	65-74	0	13,912	25,722	33,074	45,503	56,537	64,607	74,328	85,586	94,743	118,409	195,557	664,237	0
	75+	0	7,727	13,132	16,483	22,694	27,439	32,396	36,947	42,208	46,969	59,966	85,142	284,950	0

Table 2.4: Statistics Canada

Household type	# All persons	# Households	# Households with employment income	Employment income	Total income
Couple families	2,256,340	730,520	659,320	53,395,503	64,664,791
Lone-parent families	363,230	135,050	112,760	3,858,921	5,220,236
All families	2,619,570	865,570	772,080	57,254,424	69,885,027
Singles	456,420	456,420	319,380	10,903,114	15,368,514
Total	3,075,990	1,321,990	1,091,460	68,157,538	85,253,541

Age band		Couple families			Lone-parent families			Singles	All
Min	Max	# Parents	# Children	# Persons	# Parents	# Children	# Persons	# Persons	# Persons
0	4	0	144,910	144,910	0	31,580	31,580	0	176,490
5	9	0	161,240	161,240	0	44,110	44,110	20	205,370
10	14	0	181,920	181,920	0	56,380	56,380	160	238,460
15	19	7,010	172,420	179,430	1,520	55,840	57,360	17,740	254,530
20	24	55,430	85,380	140,810	8,530	16,300	24,830	51,880	217,520
25	29	119,780	29,140	148,920	12,060	7,300	19,360	48,160	216,440
30	34	154,770	9,070	163,840	15,530	3,360	18,890	37,970	220,700
35	39	171,930	5,050	176,990	19,870	3,100	22,970	32,360	232,310
40	44	200,570	3,410	203,980	23,980	3,270	27,250	35,670	266,900
45	49	191,800	1,740	193,540	19,160	2,810	21,970	35,010	250,520
50	54	154,290	700	154,990	11,380	1,930	13,310	30,120	198,420
55	59	122,740	220	122,960	6,310	1,140	7,450	26,460	156,870
60	64	89,100	60	89,160	3,550	600	4,150	22,210	115,520
65	69	70,000	20	70,020	3,040	280	3,320	22,150	95,490
70	74	56,280	0	56,280	3,140	140	3,280	24,200	83,760
75	79	37,580	0	37,580	2,740	30	2,770	24,770	65,100
80	84	20,540	0	20,540	2,230	0	2,230	22,860	45,630
85	+	9,260	0	9,260	2,020	0	2,020	24,680	35,960
Total		1,461,060	795,280	2,256,340	135,060	228,170	363,230	456,420	3,075,990

Age band		# Households - Couple families by Household income											
Age of older parent		<5K$	<10K$	5K$+	10K$+	15K$+	20K$+	25K$+	30K$+	35K$+	40K$+	45K$+	50K$+
0	24		1,350		17,540	16,380	14,960	13,350	11,660	9,850	8,170	6,670	5,370
25	34		3,770		117,190	114,980	111,820	107,910	103,390	97,970	91,980	85,330	78,300
35	44		5,240		173,060	170,850	167,790	163,930	159,370	153,900	148,040	141,420	134,200
45	54		4,220		178,330	176,510	174,010	170,880	167,330	163,170	158,560	153,450	147,940
55	64		3,110		112,410	110,330	107,480	104,120	100,630	96,660	92,330	87,630	82,880
65	+		2,000		112,300	111,160	108,940	100,980	85,170	74,510	65,270	57,050	49,780
Total			19,690		710,830	700,210	685,000	661,170	627,550	596,060	564,350	531,550	498,470

Age band		# Households - Couple families by Household income									
Age of older parent		60K$+	70K$+	75K$+	80K$+	90K$+	100K$+	150K$+	200K$+	250K$+	Total	Revenu médian
0	24	3,300	1,910	1,460	1,070	570	300	20	0	0	18,890	36,200
25	34	63,860	49,490	42,900	37,000	27,040	19,190	3,600	1,270	660	120,960	62,300
35	44	118,180	100,600	91,710	83,170	67,200	53,270	16,560	7,170	4,140	178,300	76,500
45	54	135,680	121,920	114,690	107,410	92,980	79,440	32,130	14,130	8,080	182,550	91,100
55	64	72,750	62,650	57,920	53,290	44,910	37,760	15,360	7,190	4,200	115,520	75,200
65	+	37,550	28,100	24,320	21,150	16,180	12,540	4,710	2,550	1,680	114,300	44,900
Total		431,300	364,670	333,000	303,090	248,860	202,500	72,400	32,310	18,740	730,520	69,900

Statistics Canada

Age band		# Households - Lone-parent families by Household income											
Age of older parent		<5K$	<10K$	5K$+	10K$+	15K$+	20K$+	25K$+	30K$+	35K$+	40K$+	45K$+	50K$+
0	24	2,000		8,040	5.920	3,460	1.730	880	430	200	90	40	20
25	34	2,460		25,120	22.290	18,310	14.090	10,470	7,630	5,240	3.350	2,220	1,470
35	44	3,150		40,700	38.150	34,320	30.260	26,210	22.280	18,230	14.320	11,290	8.880
45	54	1,470		29,060	27.970	26,160	24.360	22,450	20.630	18,600	16.610	14,680	12.940
55	64	290		9.570	9.300	8,640	8.110	7,560	7,000	6,430	5.830	5,270	4.710
65	+	90		13,080	13.010	12,730	11.760	10,790	9.410	8,460	7.510	6,610	5.740
Total		9,460		125,590	116.540	103,620	90.310	78,360	67.380	57,240	47.710	40,110	33.760

Age band		# Households - Lone-parent families by Household income										
Age of older parent		60K$+	70K$+	75K$+	80K$+	90K$+	100K$+	150K$+	200K$+	250K$+	Total	Revenu médian
0	24	0		0			0				10.040	11,700
25	34	740		250			80				27.580	20,400
35	44	5,480		2,620			880				43.850	30,400
45	54	9,820		6,180			2.710				30.550	43,300
55	64	3,810		2,580			1.180				9.860	48,000
65	+	4,280		2,600			1,170				13,170	45,100
Total		24,130		14,230			6.020				135,050	29,900

Statistics Canada

Age band		# Households - Lone-parent families by Household income											
Age of older parent		<5K$	<10K$	5K$+	10K$+	15K$+	20K$+	25K$+	30K$+	35K$+	40K$+	45K$+	50K$+
0	24	11,200		58,610	45,030	32,810	24,100	17,490	12,310	8,240	5,640	4,000	2,880
25	34	4,330		81,800	76,330	68,690	61,480	54,230	46,620	38,360	31,220	25,170	19,740
35	44	3,760		64,280	60,310	53,920	49,750	45,370	40,750	35,430	30,470	25,850	21,590
45	54	3,870		61,260	56,560	48,800	44,500	40,270	35,790	31,190	26,870	22,980	19,470
55	64	3,100		45,500	40,720	32,260	28,290	24,660	20,900	17,350	14,240	11,680	9,660
65	+	1,910		116,730	115,130	102,150	52,560	38,840	29,080	21,880	16,740	13,000	10,130
Total		28,170		428,240	394,080	338,630	260,680	220,860	185,450	152,450	125,180	102,680	83,470

Age band		# Households - Lone-parent families by Household income										
Age of older parent		60K$+	70K$+	75K$+	80K$+	90K$+	100K$+	150K$+	200K$+	250K$+	Total	Revenu médian
0	24	1,440		470			100				69,810	14,000
25	34	11,880		5,410			1,730				86,130	32,100
35	44	15,120		8,280			3,390				68,040	38,300
45	54	14,250		8,190			3,570				65,130	33,500
55	64	6,880		3,800			1,750				48,660	25,500
65	+	6,540		3,820			2,070				118,640	18,700
Total		56,110		29,960			12,610				456,410	24,000

Statistics Canada

Table 2.5: Gross Income per Household - 2006

Number of Households by Age-Band and Gross Income-Band

	Gross income min	**0**	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	
	Gross income max	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	**+**	**Total**
	Age													
Couple *	under 24	1,282	976	1,250	1,432	1,550	1,626	1,695	1,588	1,418	5,667	1,004	596	20,082
	25-34	3,736	1,975	2,714	3,422	4,006	4,593	5,316	5,798	6,437	48,258	18,944	26,499	131,698
	35-44	4,847	1,985	2,480	3,131	3,730	4,332	4,903	5,302	5,989	54,264	27,456	62,938	181,449
	45-54	4,487	1,827	2,319	2,908	3,396	3,825	4,356	4,762	5,278	47,940	29,662	101,350	212,112
	55-64	3,403	2,087	2,780	3,371	3,700	3,919	4,359	4,701	5,102	36,841	19,095	51,693	141,050
	65-74	1,260	862	1,374	4,455	9,112	8,530	6,603	5,926	5,296	22,967	6,195	9,765	82,434
	75+	678	456	735	2,381	4,871	4,560	3,578	3,168	2,831	12,425	3,218	5,167	44,068
1 Adult	under 24	27,661	13,705	11,387	8,498	6,431	5,030	3,893	2,572	1,605	3,697	557	260	85,296
	25-34	15,694	10,411	11,686	11,329	10,884	10,660	10,614	9,173	7,295	21,681	6,527	4,000	129,963
	35-44	12,580	8,283	8,222	7,631	7,763	8,021	8,526	8,124	7,008	22,876	9,000	7,261	115,293
	45-54	11,652	8,372	7,513	6,214	6,295	6,460	6,630	6,487	5,909	22,057	11,122	10,564	109,274
	55-64	9,091	8,308	6,609	4,603	4,489	4,529	4,315	3,934	3,309	11,022	4,731	4,880	69,821
	65-74	1,343	4,786	17,249	9,262	4,825	3,649	2,751	2,111	1,671	4,830	1,220	1,499	55,197
	75+	2,039	7,208	26,024	13,974	7,279	5,506	4,151	3,185	2,522	7,369	1,788	2,232	83,277

* Age distribution determined by the age of the oldest partner

Average Income per Household by Age-Band and Gross Income-Band

	Gross income min	**0**	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	
	Gross income max	**10,000**	**15,000**	**20,000**	**25,000**	**30,000**	**35,000**	**40,000**	**45,000**	**50,000**	**75,000**	**100,000**	**+**	**Total**
	Age													
Couple *	under 24	4,429	12,558	17,471	22,484	27,420	32,378	37,403	42,360	47,350	59,726	86,204	147,867	43,720
	25-34	7,112	25,052	35,260	45,113	55,045	65,101	74,765	84,811	94,867	123,462	172,526	279,489	144,103
	35-44	7,155	24,834	35,167	45,087	55,029	64,997	74,783	84,483	94,756	125,596	172,589	333,499	191,415
	45-54	6,205	24,124	34,941	45,233	55,197	65,225	74,927	84,776	94,973	126,250	172,984	378,108	242,597
	55-64	8,395	24,599	35,139	45,389	55,222	65,119	75,012	84,908	95,037	125,022	172,328	407,320	219,448
	65-74	12,185	24,914	34,651	45,744	55,387	64,328	74,753	84,503	94,527	120,705	170,611	518,357	142,346
	75+	5,932	13,000	17,198	22,585	27,642	32,044	37,322	42,410	47,254	60,991	85,165	233,615	68,026
1 Adult	under 24	4,429	12,340	17,122	22,184	27,229	32,217	37,308	42,359	47,350	58,694	86,204	154,794	19,318
	25-34	7,112	25,244	34,796	44,788	54,801	64,948	74,601	84,809	94,867	119,358	172,526	290,142	74,745
	35-44	7,155	25,315	34,508	44,821	54,833	64,906	74,710	84,481	94,756	121,187	172,589	344,681	92,696
	45-54	6,205	24,617	33,773	44,953	55,066	65,112	74,847	84,775	94,973	122,471	172,984	394,892	109,656
	55-64	8,395	24,899	33,597	45,077	55,216	64,948	74,895	84,906	95,037	121,752	172,328	437,053	93,333
	65-74	12,185	25,977	34,821	42,977	54,459	64,439	74,573	84,312	94,401	119,579	170,611	619,894	70,530
	75+	5,932	13,622	17,234	21,211	27,117	32,094	37,219	42,311	47,203	60,374	85,105	280,172	34,344

* Age distribution determined by the age of the oldest partner

Table 2.6: Taxable Income per Household - 2006

Number of Households by Age-Band and Taxable Income-Band

	Gross income min	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	
	Gross income max	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	+	Total
	Age													
Couple *	under 24	1,282	976	1,250	1.432	1,550	1.626	1,695	1.588	1,418	5.667	1,004	596	20,082
	25-34	3,736	1.975	2,714	3.422	4,006	4.503	5,316	5.798	6,437	48.258	18,944	26.499	131,608
	35-44	4,847	1.985	2,480	3.131	3,730	4.332	4,993	5.302	5,989	54.264	27,456	62.938	181,449
	45-54	4,487	1.627	2,319	2.906	3,396	3.825	4,356	4.762	5.278	47.940	29,662	101.350	212,112
	55-64	3,403	2.087	2,780	3.371	3,700	3.919	4,359	4.701	5,102	36.841	19,095	51.693	141,050
	65-74	1,260	862	1,374	4.455	9,112	6.530	6,683	5.926	5,296	22.967	6,195	9.765	82,434
	75+	678	456	735	2.381	4,671	4.560	3,578	3.168	2,831	12.425	3,218	5.167	44,068
1 Adult	under 24	27,661	13.705	11,387	8.498	6,431	5.030	3,863	2.572	1,605	3.697	557	260	85,296
	25-34	15,694	10.411	11,086	11.329	10,884	10.669	10,614	9.173	7,295	21.681	6,527	4.000	129,963
	35-44	12,960	8.283	8,222	7.631	7,763	8.021	8,526	8.124	7,008	22.876	9,000	7.261	115,293
	45-54	11,652	8.372	7,513	6.214	6,295	6.460	6,630	6.487	5,909	22.057	11,122	10.564	109,274
	55-64	9,091	8.308	6,609	4.603	4,489	4.529	4,316	3.934	3,309	11.022	4,731	4.880	69,821
	65-74	1,343	4.786	17,249	9.262	4,825	3.649	2,751	2.111	1,671	4.830	1,220	1.499	55,197
	75+	2,039	7.206	26,024	13.974	7,279	5.506	4,151	3.185	2,522	7.300	1,788	2.232	83,277

* Age distribution determined by the age of the oldest partner

Average Income per Household by Age-Band and Taxable Income-Band

	Gross income min	0	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	
	Gross income max	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	75,000	100,000	+	Total
	Age													
Couple *	under 24	4,479	12,413	17,625	22,448	27,417	32,375	37,359	42,291	47,345	57,561	85,695	151,826	41,156
	25-34	8,365	24,094	35,562	45,032	55,317	64,923	74,832	84,874	94,818	118,702	172,044	264,557	130,977
	35-44	7,816	24,395	35,292	45,011	54,939	64,744	74,797	84,657	94,888	120,285	172,424	313,764	171,362
	45-54	8,317	23,872	35,623	44,957	55,300	64,836	75,210	84,711	94,756	121,318	172,320	354,487	217,472
	55-64	10,319	24,183	35,748	45,348	54,923	65,285	74,797	85,325	95,026	119,864	176,088	381,299	194,403
	65-74	12,753	26,197	35,969	45,052	55,196	64,660	74,279	85,680	95,846	118,444	199,084	498,726	129,259
	75+	6,281	13,491	17,868	22,515	27,533	32,103	37,494	42,525	47,307	59,452	88,531	209,853	61,886
1 Adult	under 24	4,478	12,285	17,347	22,172	27,213	32,168	37,113	42,064	47,217	57,021	85,695	168,446	18,378
	25-34	8,650	24,120	35,629	44,870	55,135	64,761	74,513	84,315	94,577	117,184	172,044	307,294	68,417
	35-44	8,346	24,304	35,502	44,921	54,839	64,690	74,709	84,421	94,690	119,227	172,424	375,176	83,295
	45-54	9,037	22,518	35,863	44,885	55,256	64,780	75,125	84,541	94,428	120,729	171,934	431,082	97,873
	55-64	11,668	22,646	35,899	45,258	54,925	65,182	74,838	85,097	94,818	118,683	173,311	463,687	82,814
	65-74	15,694	26,665	32,206	45,122	55,295	64,656	74,241	85,367	94,829	118,444	200,497	594,325	62,625
	75+	7,936	13,327	15,752	22,511	27,478	32,128	37,458	42,468	47,112	59,423	88,749	255,197	30,361

* Age distribution determined by the age of the oldest partner

Table 2.7: Taxable Income per Household – 2006

	2005	2006	2007	2008	2009	2010	2011	2012
Non-Emergency Health	$1,947,809	$1,860,764	$1,981,119	$2,088,079	$2,206,416	$2,216,058	$2,349,022	$2,489,963
Other Medical (including Emergency Health)	$102,516	$97,935	$104,269	$109,899	$116,127	$116,635	$123,633	$131,051
Total anticipated Canada Health Transfers	$2,050,325	$1,958,699	$2,085,388	$2,197,977	$2,322,543	$2,332,693	$2,472,655	$2,621,014

	2013	2014	2015	2016	2017	2018	2019	2020
Non-Emergency Health	$2,639,361	$2,797,723	$2,965,586	$3,143,521	$3,332,132	$3,532,060	$3,743,984	$3,968,623
Other Medical (including Emergency Health)	$138,914	$147,249	$156,083	$165,448	$175,376	$185,898	$197,052	$208,875
Total anticipated Canada Health Transfers	$2,778,275	$2,944,971	$3,121,669	$3,308,970	$3,507,508	$3,717,958	$3,941,036	$4,177,498

	2021	2022	2023	2024	2025	2026	2027
Non-Emergency Health	$4,206,740	$4,459,145	$4,726,693	$5,010,295	$5,310,913	$5,629,567	$5,967,342
Other Medical (including Emergency Health)	$221,407	$234,692	$248,773	$263,700	$279,522	$296,293	$314,071
Total anticipated Canada Health Transfers	$4,428,146	$4,693,837	$4,975,467	$5,273,995	$5,590,434	$5,925,861	$6,281,412

CPI Assumption	3%
CHT Growth (above CPI) Assumption	3%
Non-Emergency Portion of Transfers	95%
Wait Times Reduction transfer until	2009
Wait Times Reduction transfer: 2008 and after	$121,889

Table 3.1: Legend of Used Therapeutic Classes

Class	**Includes:**		
1	• Supplies • Enzymes • Homeopathy medication • Herbal medicine • Nut supplemonts • Diagnostic agents • Unclassified drugs • Anxiety medication • Sleeping pills • Vaccines	• Psychosis • Compounds • Hyperactivity drugs • Genito-Urinary medication • Immunosuppressors • Anticonvulsants • Migraine drugs • Multiple Sclerosis medication • Esthetic agents • Fertility	• Erectile Dysfunction • Obesity • Vitamins and Minerals • Eye, Ear, Nose and Throat drugs • Anti-Smoking agents • Flu & Cold drugs • Dermatological agents • Allergy drugs • Birth control
2	• Cardiovascular drugs	• Lipid lowering agents	
3	• Parkinson medication • Analgesics	• Hormones	• Blood disorder agents
4	• Gastrointestinal drugs		•
5	• Osteoporosis medication • Alzheimer medication	• Cancer medication	• Musculoskeletal agents (NSAID)
6	• Depression drugs		
7	• Diabetes medication		
8	• Immuno-modulator agents	• Antibiotics, antiviral drugs, AIDS medication	
9	• Thyroid disorder medication		
10	• Asthma medication		

Table 3.2: Incidence Rates per Therapeutic Class - Year 2020

	Therapeutic Class 1		Therapeutic Class 2		Therapeutic Class 3		Therapeutic Class 4		Therapeutic Class 5	
Age	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
0-14	100.00%	100.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%
15-24	100.00%	100.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%	110.00%
25-44	100.00%	100.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%
45-64	100.00%	100.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%
65-74	100.00%	100.00%	125.00%	125.00%	125.00%	125.00%	125.00%	125.00%	125.00%	125.00%
75+	100.00%	100.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%	120.00%

	Therapeutic Class 6		Therapeutic Class 7		Therapeutic Class 8		Therapeutic Class 9		Therapeutic Class 10	
Age	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
0-14	105.00%	105.00%	110.00%	110.00%	110.00%	110.00%	100.00%	100.00%	100.00%	100.00%
15-24	115.00%	115.00%	110.00%	110.00%	110.00%	110.00%	100.00%	100.00%	100.00%	100.00%
25-44	115.00%	115.00%	150.00%	150.00%	120.00%	120.00%	105.00%	105.00%	100.00%	100.00%
45-64	105.00%	105.00%	150.00%	150.00%	120.00%	120.00%	110.00%	110.00%	100.00%	100.00%
65-74	110.00%	110.00%	150.00%	150.00%	125.00%	125.00%	115.00%	115.00%	100.00%	100.00%
75+	110.00%	110.00%	150.00%	150.00%	120.00%	120.00%	115.00%	115.00%	100.00%	100.00%

Table 3.3: Drug Costs for the AHW programs - calendar year 2004

				Therapeutic Class 1				Therapeutic Class 2			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	2,485	2,309	14.12	18.20	9.91	13.12	1.60	1.98	1.02	1.40
5	9	3,695	4,055	44.87	30.07	39.90	22.60	1.16	2.65	0.80	1.74
10	14	4,022	4,381	31.87	58.75	23.89	43.80	2.16	4.77	1.64	3.37
15	19	5,903	5,526	93.57	80.53	72.45	62.33	8.79	6.90	7.09	5.01
20	24	6,146	5,726	192.02	116.56	155.39	100.38	8.26	11.15	6.53	8.56
25	29	3,254	2,126	535.81	349.87	448.94	299.32	22.48	44.40	17.41	35.21
30	34	2,870	2,214	897.27	405.01	752.56	346.46	41.64	54.22	32.14	41.83
35	39	3,592	2,936	1,061.90	404.26	886.27	353.32	69.79	109.03	54.07	85.95
40	44	5,586	4,163	894.29	328.42	741.85	280.40	106.48	183.07	82.02	143.62
45	49	8,450	5,726	588.05	372.03	483.76	319.33	155.59	274.75	119.96	215.30
50	54	11,242	7,414	366.76	288.47	301.84	248.31	242.60	374.70	189.16	297.04
55	59	17,691	9,427	223.18	151.44	178.85	123.58	335.05	491.47	264.77	390.93
60	64	29,702	14,127	140.10	118.47	109.48	92.63	391.70	530.63	313.35	426.04
65	69	49,400	47,703	126.21	103.54	96.28	80.15	429.23	478.04	345.95	386.92
70	74	43,854	40,541	143.03	141.62	107.34	109.46	533.96	581.73	429.41	469.80
75	79	36,451	29,372	156.70	173.10	115.18	132.39	598.94	625.80	476.42	500.52
80	84	28,233	18,051	171.22	189.29	124.79	141.39	630.10	587.40	491.66	459.30
85	89	15,662	7,869	182.83	217.21	132.16	161.16	588.27	520.50	449.33	395.30
90	+	8,223	3,067	176.56	226.74	126.70	166.77	521.13	433.06	388.29	322.98

				Therapeutic Class 3				Therapeutic Class 4			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	2,485	2,389	3.44	0.89	2.08	0.70	4.25	5.45	3.00	4.29
5	9	3,695	4,055	3.47	8.44	2.80	7.05	3.77	6.62	2.98	5.44
10	14	4,022	4,381	16.29	12.66	15.10	9.74	4.76	13.09	3.92	10.86
15	19	5,903	5,528	13.51	8.80	11.01	7.01	15.85	11.01	12.62	9.28
20	24	6,146	5,728	25.11	16.30	20.56	14.27	34.08	45.58	28.44	39.73
25	29	3,254	2,126	64.30	30.66	55.68	24.37	88.88	114.12	76.23	103.02
30	34	2,870	2,214	159.75	105.06	138.19	93.57	118.05	138.02	98.91	124.23
35	39	3,592	2,936	132.69	131.38	113.18	106.08	147.67	180.55	124.50	150.72
40	44	5,586	4,163	149.71	141.69	121.18	125.03	184.30	160.91	148.81	133.34
45	49	8,450	5,726	158.35	132.50	130.93	113.31	182.94	159.02	152.16	132.92
50	54	11,242	7,414	115.24	146.83	90.20	125.14	181.54	144.79	151.71	124.80
55	59	17,691	9,427	116.50	115.21	95.04	99.73	176.13	152.13	149.53	129.04
60	64	29,702	14,127	89.46	91.06	73.66	79.92	168.43	134.95	144.36	114.93
65	69	49,400	47,703	78.56	72.25	65.83	63.57	162.20	118.75	140.25	102.10
70	74	43,654	40,541	89.14	90.43	76.57	79.63	185.54	151.94	159.88	131.02
75	79	36,451	29,372	95.45	122.56	81.84	109.06	204.42	170.23	174.98	145.72
80	84	28,233	18,051	100.11	113.52	84.38	98.84	208.84	174.38	174.24	145.03
85	89	15,662	7,809	101.16	113.66	83.94	98.50	212.11	178.07	173.15	145.19
90	+	8,223	3,067	80.07	88.21	65.04	74.57	200.55	182.73	159.30	143.51

				Therapeutic Class 5				Therapeutic Class 6			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	2,485	2,389	4.01	1.29	3.24	0.87	0.51	0.67	0.38	0.48
5	9	3,696	4,055	5.53	1.47	4.87	0.94	1.32	2.22	0.91	1.58
10	14	4,022	4,381	6.17	5.26	5.31	4.48	9.69	11.17	6.72	7.92
15	19	5,903	5,526	7.70	4.47	5.56	3.21	21.23	15.33	15.64	11.21
20	24	6,146	5,726	14.95	9.43	11.93	6.63	54.26	26.55	41.14	20.29
25	29	3,254	2,126	36.81	45.00	28.50	36.61	110.37	73.91	85.39	57.34
30	34	2,870	2,214	82.55	37.23	69.73	28.27	144.73	74.00	111.14	56.41
35	39	3,592	2,936	97.65	55.38	80.73	44.89	149.05	75.33	113.25	58.91
40	44	5,586	4,163	118.95	88.54	100.67	72.71	164.08	80.60	126.09	62.39
45	49	8,450	5,726	127.67	97.86	106.41	78.95	150.76	79.17	114.72	60.71
50	54	11,242	7,414	132.09	78.79	104.76	63.56	135.82	74.29	104.61	57.31
55	59	17,691	9,427	147.36	90.40	120.19	72.65	105.24	60.25	82.22	46.69
60	64	29,702	14,127	134.33	91.22	110.30	74.28	74.04	42.78	57.94	33.16
65	69	49,400	47,703	128.32	64.61	105.27	52.93	57.51	26.70	44.88	20.84
70	74	43,654	40,541	157.81	85.05	129.96	70.30	55.00	28.14	42.51	21.92
75	79	36,451	29,372	185.46	100.47	153.29	83.67	55.00	29.90	41.70	22.86
80	84	28,233	18,051	196.85	119.07	161.00	98.66	56.40	33.17	41.72	24.51
85	89	15,662	7,869	207.37	130.87	168.62	108.95	55.98	35.37	40.65	25.66
90	+	8,223	3,067	173.64	125.55	139.81	103.80	46.53	34.91	33.28	24.82

				Therapeutic Class 7				Therapeutic Class 8			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	2,485	2,389	0.21	0.19	0.16	0.14	25.10	29.06	17.41	20.81
5	9	3,695	4,055	0.73	1.55	0.48	1.14	20.90	18.60	14.72	13.33
10	14	4,022	4,381	3.44	4.39	2.44	2.98	21.74	22.76	15.56	16.56
15	19	5,903	5,526	5.34	6.17	3.76	4.47	45.00	33.42	34.63	25.25
20	24	6,146	5,726	6.93	8.50	5.07	6.25	44.98	26.54	34.54	19.33
25	29	3,254	2,126	13.39	24.54	10.03	17.86	71.16	53.80	55.92	45.26
30	34	2,870	2,214	15.18	27.14	10.80	20.12	88.90	107.06	70.41	92.79
35	39	3,592	2,936	24.58	37.16	18.58	28.76	88.98	99.56	70.67	85.27
40	44	5,586	4,163	25.51	42.47	19.08	32.76	114.52	101.89	91.16	86.38
45	49	8,450	5,726	33.36	61.72	25.74	47.35	99.06	186.12	74.77	160.72
50	54	11,242	7,414	43.19	71.42	33.46	56.16	82.89	133.34	62.82	113.02
55	59	17,691	9,427	54.82	102.36	43.09	80.78	55.10	69.34	41.66	55.09
60	64	29,702	14,127	51.73	95.92	40.95	76.16	43.09	45.70	32.10	35.01
65	69	49,400	47,703	51.52	76.40	40.79	61.42	39.67	34.49	29.39	26.07
70	74	43,854	40,541	61.87	83.96	48.81	67.03	40.54	37.57	29.94	28.06
75	79	36,451	29,372	56.83	80.75	43.90	63.80	38.82	39.72	28.35	29.30
80	84	28,233	18,051	47.79	59.67	36.07	45.71	37.13	38.19	26.94	27.68
85	89	15,662	7,869	34.75	46.79	25.93	34.96	34.68	35.76	24.99	25.70
90	•	8,223	3,067	24.78	34.26	18.29	25.67	30.83	37.17	22.11	26.57

				Therapeutic Class 9				Therapeutic Class 10			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	2,485	2,389	0.30	0.17	0.19	0.11	10.18	19.74	6.96	14.12
5	9	3,695	4,055	0.16	0.10	0.11	0.07	15.17	26.16	10.73	18.64
10	14	4,022	4,381	0.36	0.15	0.24	0.10	18.61	31.92	13.86	23.72
15	19	5,903	5,526	0.54	0.15	0.36	0.10	20.72	26.28	15.66	20.02
20	24	6,146	5,726	1.29	0.38	0.90	0.27	24.56	22.59	18.72	16.92
25	29	3,254	2,126	2.65	0.93	1.80	0.64	40.71	49.08	32.18	37.59
30	34	2,870	2,214	4.66	1.82	3.18	1.28	36.44	39.56	28.18	31.69
35	39	3,592	2,936	5.85	1.83	3.99	1.28	37.68	31.42	25.78	25.39
40	44	5,586	4,163	7.50	1.83	5.10	1.25	42.10	36.33	32.87	28.65
45	49	8,450	5,726	7.79	2.34	5.30	1.59	38.32	34.17	30.38	27.35
50	54	11,242	7,414	9.53	2.74	6.68	1.87	40.35	32.67	31.69	26.47
55	59	17,691	9,427	10.44	3.35	7.20	2.36	44.57	39.65	36.13	32.42
60	64	29,702	14,127	11.44	3.74	8.01	2.59	49.57	48.43	40.33	39.22
65	69	49,400	47,703	11.80	3.72	8.24	2.59	59.52	53.08	49.04	43.53
70	74	43,854	40,541	14.14	4.82	9.87	3.36	70.90	79.55	58.66	65.73
75	79	36,451	29,372	16.04	6.36	11.20	4.43	76.73	100.84	63.19	83.06
80	84	28,233	18,051	19.44	8.43	13.55	5.81	75.30	100.78	61.35	80.80
85	89	15,662	7,869	22.00	11.48	15.38	7.85	65.34	97.75	52.56	78.83
90	+	8,223	3,067	24.17	14.80	16.89	9.91	59.60	87.57	46.94	69.13

Table 3.4: Drug Costs for the Income Support programs - calendar year 2004

				Therapeutic Class 1				Therapeutic Class 2			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	10,105	11,108	31.21	36.54	30.64	35.80	0.96	0.92	0.91	0.88
5	9	9,369	10,384	49.27	74.14	47.90	71.82	1.82	4.14	1.69	3.95
10	14	8,484	8,735	66.93	133.83	64.93	129.08	1.83	7.13	1.71	6.78
15	19	7,840	5,648	105.06	206.38	99.56	195.51	4.40	6.96	3.84	6.12
20	24	6,367	3,598	211.64	566.10	200.11	542.89	8.15	23.40	7.68	21.79
25	29	5,932	3,778	331.37	680.45	310.69	671.54	15.78	31.91	15.00	30.06
30	34	5,551	4,528	432.73	728.04	421.19	711.02	33.65	48.17	31.74	46.99
35	39	5,627	5,155	573.54	742.81	551.37	727.43	49.09	66.57	47.44	64.32
40	44	5,967	6,402	696.41	838.56	676.73	826.69	103.10	104.63	99.33	101.33
45	49	5,084	5,875	821.43	881.64	802.92	863.30	189.14	167.49	183.99	163.48
50	54	4,171	4,231	870.64	846.60	854.84	832.93	321.89	315.51	311.99	305.05
55	59	3,612	3,512	732.01	667.30	708.33	651.77	455.61	475.79	433.63	459.52
60	64	2,854	2,635	602.79	515.34	587.64	503.03	569.77	623.62	548.29	603.84
65	69	225	202	280.73	334.33	247.17	278.49	510.47	724.49	404.64	565.83
70	74	76	44	178.35	411.50	101.06	204.86	526.35	1,486.44	316.07	719.26
75	79	39	28	100.93	315.90	63.12	174.62	644.63	1,057.48	291.74	558.68
80	84	17	9	101.69	525.87	54.27	344.66	526.24	657.27	324.53	323.76
85	89	8	6	161.90	171.11	124.85	133.84	734.95	612.96	352.46	312.45
90	•	2	3	209.50	324.27	81.85	151.58	586.35	356.41	213.52	293.69

				Therapeutic Class 3				Therapeutic Class 4			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	10,105	11,108	6.42	7.76	6.06	7.73	4.39	4.57	4.28	4.43
5	9	9,389	10,384	10.29	13.64	9.91	13.11	5.77	4.49	5.57	4.37
10	14	8,484	8,735	8.83	20.78	7.66	19.58	6.39	8.86	5.80	8.67
15	19	7,840	5,648	22.09	27.66	20.47	23.13	15.17	13.61	14.10	12.17
20	24	6,367	3,598	47.06	54.09	42.64	51.40	38.89	57.60	36.17	52.97
25	29	5,932	3,778	77.51	93.82	74.21	91.57	54.06	62.96	50.90	60.46
30	34	5,551	4,528	137.05	181.39	130.66	177.54	93.38	103.33	90.23	100.81
35	39	5,627	5,155	196.48	193.58	189.51	188.94	144.67	136.18	141.18	131.60
40	44	5,967	6,402	227.28	260.58	221.67	256.18	205.99	147.45	200.33	144.06
45	49	5,084	5,875	298.70	312.98	288.51	308.50	273.98	179.27	267.56	176.80
50	54	4,171	4,231	328.99	392.33	316.27	384.80	336.11	246.71	328.27	242.14
55	59	3,612	3,512	277.87	337.64	256.59	322.38	388.97	271.12	375.16	264.03
60	64	2,854	2,635	241.76	285.01	227.64	264.77	391.53	289.78	379.70	282.12
65	69	225	202	94.04	212.72	76.74	151.59	298.11	282.85	226.44	208.81
70	74	76	44	49.11	185.92	15.89	93.53	250.57	513.86	165.39	267.42
75	79	39	28	34.05	39.22	12.24	20.66	210.27	214.16	103.49	115.22
80	84	17	9	62.75	171.38	17.17	53.68	197.44	122.31	122.83	103.94
85	89	8	6	23.11	4.59	12.07	1.38	453.59	75.59	149.75	70.83
90	•	2	3	312.16	112.41	93.64	10.72	176.64	15.64	75.24	4.74

				Therapeutic Class 5				Therapeutic Class 6			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	10,105	11,108	2.04	2.35	2.01	2.32	0.10	0.16	0.10	0.14
5	9	9,389	10,384	2.57	2.60	2.51	2.55	2.48	3.68	2.42	3.57
10	14	8,484	8,735	4.46	3.42	4.35	3.34	10.63	16.68	10.37	16.17
15	19	7,840	5,648	8.84	7.05	8.40	6.65	31.08	32.39	29.16	30.42
20	24	6,367	3,598	14.99	17.68	13.93	16.08	63.71	83.64	60.47	80.41
25	29	5,932	3,778	29.77	29.13	28.00	27.30	111.55	105.39	107.29	102.55
30	34	5,551	4,528	51.60	28.27	49.55	27.41	140.15	120.81	135.82	117.30
35	39	5,627	5,155	70.36	52.40	66.17	50.76	185.10	133.06	179.80	129.49
40	44	5,967	6,402	103.27	70.52	100.37	63.17	243.02	149.00	235.42	145.94
45	49	5,084	5,875	141.50	88.81	136.40	84.58	293.77	182.11	286.17	179.00
50	54	4,171	4,231	187.46	113.91	181.33	109.63	332.70	200.52	323.16	194.90
55	59	3,612	3,512	203.40	146.39	194.02	142.26	289.41	174.23	278.31	169.16
60	64	2,854	2,635	218.78	148.72	206.51	143.73	233.14	142.13	225.01	138.01
65	69	225	202	119.40	130.15	93.11	96.38	79.09	93.48	65.14	65.01
70	74	76	44	113.19	180.02	67.82	99.01	25.96	83.78	16.21	51.03
75	79	39	28	112.00	125.72	50.46	73.94	59.97	82.00	28.37	42.70
80	84	17	9	135.00	156.56	78.96	65.95	38.85	44.15	20.88	44.34
85	89	8	6	191.58	120.92	109.73	36.39	9.13	83.82	5.62	25.23
90	+	2	3	768.11	59.00	174.96	38.75	165.74	31.46	49.72	9.54

				Therapeutic Class 7				Therapeutic Class 8			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	10,105	11,108	1.43	1.94	1.43	1.93	35.48	34.51	34.28	33.48
5	9	9,380	10,384	6.75	4.97	6.52	4.79	31.68	29.82	30.47	27.84
10	14	8,484	8,735	11.36	10.83	11.05	10.21	28.57	24.09	27.34	22.94
15	19	7,840	5,648	7.81	9.46	7.43	9.10	35.17	37.75	33.28	35.17
20	24	6,367	3,598	10.26	11.77	9.96	11.28	35.61	35.50	31.56	33.63
25	29	5,932	3,778	16.65	16.61	16.17	16.09	49.14	30.46	46.26	29.30
30	34	5,551	4,528	26.89	28.21	26.27	27.39	52.18	45.93	49.92	44.25
35	39	5,627	5,155	35.23	37.89	34.39	37.15	71.31	52.91	67.99	51.41
40	44	5,967	6,402	61.28	49.70	60.15	48.55	82.50	74.55	77.98	72.52
45	49	5,084	5,875	90.06	78.99	88.22	77.62	96.38	89.29	93.41	87.61
50	54	4,171	4,231	144.39	118.96	142.00	116.95	92.97	118.56	89.34	108.97
55	59	3,612	3,512	189.76	190.25	183.52	184.82	77.25	80.51	73.67	77.76
60	64	2,854	2,635	216.50	251.62	210.37	246.21	73.88	70.27	71.24	67.72
65	69	225	202	193.83	193.77	149.26	155.04	38.17	67.38	27.68	48.16
70	74	76	44	111.09	575.71	66.24	378.07	39.23	128.49	25.00	71.58
75	79	39	28	180.92	279.71	91.46	220.94	31.18	48.91	13.08	28.35
80	84	17	9	54.90	188.89	37.63	178.50	18.74	80.72	6.55	48.49
85	89	8	6	99.93	245.65	49.42	212.10	39.44	9.20	23.13	7.75
90	+	2	3	0.00	164.37	0.00	123.05	33.32	67.92	13.16	44.42

				Therapeutic Class 9				Therapeutic Class 10			
Age		Number of members		$ eligible per member		$ paid per member		$ eligible per member		$ paid per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	10,105	11,108	0.12	0.10	0.10	0.09	15.30	22.89	14.85	22.25
5	9	9,389	10,384	0.18	0.09	0.16	0.09	21.66	32.73	20.55	30.96
10	14	8,484	8,735	0.47	0.22	0.46	0.22	30.25	38.90	29.06	36.35
15	19	7,840	5,648	0.81	0.70	0.78	0.67	25.63	32.27	24.13	30.17
20	24	6,367	3,598	2.34	2.39	2.17	2.09	21.64	22.02	20.23	20.72
25	29	5,932	3,778	5.43	2.67	5.09	2.52	25.85	24.18	24.62	23.39
30	34	5,551	4,528	6.18	4.13	5.70	3.84	39.87	25.29	37.81	24.71
35	39	5,627	5,155	8.73	3.95	8.18	3.66	53.70	27.90	52.15	27.11
40	44	5,967	6,402	11.76	4.06	11.08	3.87	73.17	32.90	71.82	32.22
45	49	5,084	5,875	19.63	5.34	18.60	5.09	94.35	52.16	91.71	51.00
50	54	4,171	4,231	26.27	9.37	25.20	9.09	107.90	72.01	106.08	70.35
55	59	3,612	3,512	29.07	10.41	27.53	9.75	143.01	110.53	138.87	106.87
60	64	2,854	2,635	27.05	7.98	25.31	7.58	161.98	165.82	156.65	161.32
65	69	225	202	13.68	7.30	11.57	5.18	115.23	132.37	96.84	96.68
70	74	76	44	15.67	3.77	5.54	2.49	64.43	412.66	45.07	215.56
75	79	39	28	31.15	0.84	11.17	0.25	75.90	130.95	19.67	60.09
80	84	17	9	1.25	30.38	0.38	30.45	9.45	240.61	9.06	216.57
85	89	8	6	0.00	0.00	0.00	0.00	0.00	91.20	0.00	90.49
90	+	2	3	0.00	4.16	0.00	1.52	46.77	1,070.26	10.50	162.05

Table 3.5: Drug Costs for the Uninsured group - calendar year 2004

				Therapeutic Class 1		Therapeutic Class 2		Therapeutic Class 3		Therapeutic Class 4		Therapeutic Class 5	
Age		Number of members		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	19,331	23,283	35.90	27.01	0.24	0.70	1.02	3.28	1.40	1.75	0.78	0.95
5	9	19,883	24,184	31.28	30.39	0.56	0.68	3.00	3.93	1.27	1.01	1.40	2.45
10	14	21,642	26,129	43.65	49.88	1.07	1.72	6.66	4.83	2.54	2.48	6.17	1.01
15	19	21,192	26,873	59.67	70.14	1.31	2.15	8.98	4.01	7.17	11.39	5.10	3.03
20	24	51,527	62,140	103.55	85.38	2.78	4.98	9.47	23.53	12.95	9.84	7.73	5.57
25	29	56,498	67,401	102.21	88.87	4.00	8.58	13.52	12.98	15.76	18.56	8.13	15.60
30	34	30,077	35,877	123.93	89.17	7.86	16.12	23.89	36.91	25.38	24.90	17.05	13.75
35	39	40,186	49,005	157.19	121.61	18.30	31.95	28.83	31.80	35.16	38.18	23.83	19.77
40	44	46,302	43,156	167.04	118.75	33.22	62.15	41.26	48.67	51.70	53.29	44.81	24.42
45	49	33,209	34,586	181.88	145.25	69.87	107.32	55.44	44.60	68.11	49.00	53.82	31.73
50	54	27,109	26,497	183.81	152.54	142.13	206.51	73.41	60.79	90.94	85.94	84.63	43.51
55	59	18,989	27,472	169.09	144.79	257.80	324.69	90.93	66.63	123.78	85.62	112.13	56.42
60	64	11,148	16,304	153.31	139.19	373.19	443.88	86.81	73.48	162.48	101.50	133.62	67.99
65	69	0	0	0	0	0	0	0	0	0	0	0	0
70	74	0	0	0	0	0	0	0	0	0	0	0	0
75	79	0	0	0	0	0	0	0	0	0	0	0	0
80	84	0	0	0	0	0	0	0	0	0	0	0	0
85	89	0	0	0	0	0	0	0	0	0	0	0	0
90	+	0	0	0	0	0	0	0	0	0	0	0	0

Age		Number of members		Therapeutic Class 6 $ eligible per member		Therapeutic Class 7 $ eligible per member		Therapeutic Class 8 $ eligible per member		Therapeutic Class 9 $ eligible per member		Therapeutic Class 10 $ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	19,331	23,283	0.04	0.04	0.40	0.38	21.95	19.92	0.04	0.04	9.87	11.33
5	9	19,883	24,184	0.54	0.88	1.09	1.28	23.63	16.16	0.06	0.03	16.53	14.45
10	14	21,642	26,129	3.11	3.87	2.25	2.17	20.16	10.92	0.26	0.09	16.63	15.32
15	19	21,192	26,873	9.39	8.05	1.96	3.38	18.[illegible]	23.95	0.38	0.19	9.12	12.79
20	24	51,527	62,140	19.46	16.75	3.03	6.14	20.77	20.77	0.77	0.55	9.12	12.69
25	29	56,498	67,401	27.65	25.62	3.34	5.61	18.88	32.29	1.08	0.43	8.12	20.06
30	34	36,077	35,877	35.17	35.15	5.64	6.32	23.77	28.73	1.95	0.85	12.15	14.67
35	39	40,186	49,005	46.32	34.92	5.73	9.44	28.64	33.33	2.63	1.11	14.27	13.54
40	44	46,302	43,156	70.76	40.61	10.68	10.39	37.43	38.56	3.88	1.10	20.06	15.82
45	49	33,209	34,585	76.66	43.52	15.33	20.75	38.57	51.47	5.39	1.49	23.23	15.73
50	54	27,109	26,497	85.46	48.67	25.95	36.45	41.43	56.75	7.32	2.02	27.25	18.62
55	59	18,989	27,472	86.11	45.34	43.03	62.84	39.53	46.19	9.37	2.68	40.60	26.86
60	64	11,148	16,304	74.83	37.94	55.12	83.40	40.52	38.36	11.43	3.17	51.01	41.64
65	69	0	0	0	0	0	0	0	0	0	0	0	0
70	74	0	0	0	0	0	0	0	0	0	0	0	0
75	79	0	0	0	0	0	0	0	0	0	0	0	0
80	84	0	0	0	0	0	0	0	0	0	0	0	0
85	89	0	0	0	0	0	0	0	0	0	0	0	0
90	+	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.6: Drug Costs for the Private group - calendar year 2004

				Therapeutic Class 1		Therapeutic Class 2		Therapeutic Class 3		Therapeutic Class 4		Therapeutic Class 5	
Age		Number of members		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	65,509	65,955	37.66	25.91	0.07	0.62	0.11	2.64	0.84	1.16	0.48	0.72
5	9	67,247	68,087	28.23	24.02	0.38	0.04	1.98	2.22	0.51	0.17	1.02	2.50
10	14	74,932	76,046	41.93	40.17	0.93	0.94	5.94	2.60	2.00	1.16	6.39	0.50
15	19	77,151	80,288	52.85	60.40	0.44	1.51	7.36	2.07	5.74	11.33	4.55	2.67
20	24	52,659	51,151	84.51	54.79	1.62	3.25	3.80	21.97	7.91	3.59	6.15	4.41
25	29	50,790	52,791	56.72	46.00	1.67	5.81	3.99	7.37	7.39	12.33	4.05	13.34
30	34	71,902	81,901	72.20	47.09	4.63	13.43	10.25	27.44	16.70	17.77	11.91	12.38
35	39	68,510	66,739	80.87	66.59	13.15	26.03	10.47	16.04	20.74	25.12	16.30	15.80
40	44	79,205	88,339	81.62	59.58	23.10	53.68	20.52	29.68	31.50	41.83	35.31	18.30
45	49	82,322	88,894	103.69	84.13	54.14	93.09	30.53	21.83	44.27	33.76	41.18	23.94
50	54	62,918	70,472	108.75	98.50	113.31	183.51	49.77	32.62	59.52	47.41	69.89	35.88
55	59	44,177	45,040	103.95	105.81	212.72	281.30	66.30	37.06	82.50	58.88	91.46	43.15
60	64	17,676	28,498	105.68	116.73	314.93	389.04	58.68	46.59	117.88	69.26	120.17	50.06
65	69	0	0	0	0	0	0	0	0	0	0	0	0
70	74	0	0	0	0	0	0	0	0	0	0	0	0
75	79	0	0	0	0	0	0	0	0	0	0	0	0
80	84	0	0	0	0	0	0	0	0	0	0	0	0
85	89	0	0	0	0	0	0	0	0	0	0	0	0
90	+	0	0	0	0	0	0	0	0	0	0	0	0

Age		Number of members		Therapeutic Class 6		Therapeutic Class 7		Therapeutic Class 8		Therapeutic Class 9		Therapeutic Class 10	
				$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	65,509	65,955	0.02	0.00	0.25	0.13	19.89	17.29	0.02	0.02	9.09	9.18
5	9	67,247	68,087	0.24	0.38	0.33	0.71	22.80	14.03	0.03	0.02	15.98	11.08
10	14	74,932	76,046	1.93	2.02	1.17	1.08	19.25	8.79	0.24	0.08	15.09	11.76
15	19	77,151	80,288	6.35	5.91	1.13	2.79	15.10	22.48	0.32	0.16	6.60	10.59
20	24	52,659	51,151	11.02	11.65	1.83	5.48	16.52	18.97	0.54	0.45	6.11	10.99
25	29	50,790	52,791	13.57	18.64	1.34	4.18	11.98	30.56	0.52	0.27	4.20	18.18
30	34	71,902	81,901	23.05	29.59	3.07	4.81	19.05	25.80	1.53	0.66	9.11	13.47
35	39	68,510	66,739	29.96	25.97	2.47	6.21	21.98	28.89	1.97	0.87	9.89	11.64
40	44	79,205	88,339	51.70	31.23	6.02	6.19	28.76	33.17	3.04	0.86	14.65	13.69
45	49	82,322	88,894	56.22	32.41	9.04	14.45	29.06	40.65	4.29	1.19	17.45	12.25
50	54	62,918	70,472	60.90	37.26	15.35	28.12	30.97	45.42	5.72	1.52	19.81	14.10
55	59	44,177	45,040	62.67	32.96	26.83	45.71	30.57	39.18	7.41	1.98	31.02	18.20
60	64	17,676	28,498	51.75	26.54	35.64	62.87	31.36	32.23	9.04	2.48	36.26	27.53
65	69	0	0	0	0	0	0	0	0	0	0	0	0
70	74	0	0	0	0	0	0	0	0	0	0	0	0
75	79	0	0	0	0	0	0	0	0	0	0	0	0
80	84	0	0	0	0	0	0	0	0	0	0	0	0
85	89	0	0	0	0	0	0	0	0	0	0	0	0
90	+	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.7: Drug Costs for non-prescribed drugs - calendar year 2004

				Therapeutic Class 1		Therapeutic Class 2		Therapeutic Class 3		Therapeutic Class 4		Therapeutic Class 5	
Age		Number of members		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member		$ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	97,430	102,735	9.99	7.52	0.07	0.19	0.28	0.91	0.39	0.49	0.22	0.27
5	9	100,215	106,710	8.71	8.47	0.16	0.19	0.84	1.10	0.35	0.28	0.39	0.68
10	14	109,080	115,290	12.15	13.90	0.30	0.48	1.85	1.35	0.71	0.89	1.71	0.28
15	19	112,085	118,335	16.61	19.54	0.37	0.80	2.50	1.12	1.99	3.17	1.42	0.84
20	24	116,700	122,815	29.24	24.43	0.79	1.41	2.71	6.49	3.66	2.85	2.16	1.56
25	29	118,475	128,095	29.41	25.78	1.14	2.42	3.89	3.70	4.45	5.23	2.29	4.31
30	34	116,400	124,520	34.85	25.03	2.20	4.49	6.71	10.29	7.08	6.95	4.75	3.82
35	39	117,915	123,835	44.41	34.50	5.08	8.87	8.13	8.98	9.52	10.09	6.63	5.49
40	44	137,060	142,060	47.20	33.40	9.26	17.27	11.58	13.62	14.45	14.84	12.44	6.81
45	49	129,065	135,080	50.93	40.64	19.44	29.83	15.48	12.47	18.90	13.66	14.97	8.84
50	54	105,440	108,615	51.45	42.61	39.55	57.44	20.47	16.98	25.37	18.38	23.54	12.11
55	59	84,470	85,450	47.22	40.58	71.73	90.45	25.32	18.71	34.50	23.96	31.20	15.76
60	64	61,380	61,565	42.70	38.83	103.77	123.60	24.16	20.54	45.21	28.35	37.14	18.97
65	69	49,625	47,905	35.16	28.96	119.03	132.74	21.79	20.18	45.11	33.10	35.54	17.98
70	74	43,930	40,585	39.65	39.32	147.96	161.46	24.68	25.08	51.44	42.21	43.71	23.59
75	79	36,490	29,400	43.40	48.00	165.97	173.51	26.43	33.94	56.64	47.18	51.37	27.84
80	84	28,250	18,060	47.43	52.50	174.57	162.77	27.73	31.46	57.86	48.31	54.53	33.00
85	89	15,670	7,875	50.86	60.18	163.02	144.24	28.02	31.47	56.81	49.32	57.46	36.26
90	+	8,225	3,070	48.92	62.86	144.40	119.97	22.20	24.45	55.57	50.58	48.16	34.77

Age		Number of members		Therapeutic Class 6 $ eligible per member		Therapeutic Class 7 $ eligible per member		Therapeutic Class 8 $ eligible per member		Therapeutic Class 9 $ eligible per member		Therapeutic Class 10 $ eligible per member	
Min	Max	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	4	97,430	102,735	0.01	0.01	0.11	0.11	6.11	5.55	0.01	0.01	2.75	3.16
5	9	100,215	106,710	0.15	0.25	0.30	0.36	6.57	4.50	0.02	0.01	4.60	4.02
10	14	109,080	115,290	0.87	1.08	0.63	0.61	5.61	3.04	0.07	0.03	4.63	4.26
15	19	112,085	118,335	2.62	2.25	0.55	0.94	5.20	6.66	0.10	0.05	2.54	3.56
20	24	116,700	122,615	5.51	4.72	0.86	1.70	5.80	5.74	0.22	0.15	2.57	3.52
25	29	116,475	126,095	7.78	7.18	0.96	1.57	5.23	8.83	0.30	0.12	2.28	5.51
30	34	116,400	124,520	9.81	9.78	1.57	1.76	6.00	7.90	0.84	0.24	3.38	4.08
35	39	117,915	123,835	12.90	9.74	1.81	2.64	7.94	9.21	0.73	0.31	3.97	3.75
40	44	137,060	142,060	19.69	11.31	2.99	2.91	10.40	10.72	1.08	0.31	5.58	4.40
45	49	129,065	135,060	21.34	12.12	4.28	5.78	10.73	14.33	1.50	0.42	6.47	4.38
50	54	105,440	108,615	23.82	13.56	7.25	10.16	11.54	15.80	2.04	0.56	7.50	5.19
55	59	84,470	85,450	23.98	12.68	12.00	17.57	11.00	12.07	2.61	0.75	11.30	7.52
60	64	61,380	61,565	20.83	10.59	16.34	23.27	11.27	10.69	3.18	0.88	14.19	11.63
65	69	49,625	47,905	15.96	7.48	14.45	21.31	10.90	9.59	3.27	1.03	16.56	14.80
70	74	43,930	40,585	15.22	7.81	17.17	23.41	11.23	10.44	3.92	1.34	19.64	22.14
75	79	36,490	29,400	15.24	8.30	15.78	22.43	10.75	11.01	4.45	1.76	21.26	27.95
80	84	28,250	18,060	15.62	9.19	13.24	16.55	10.28	10.59	5.38	2.34	20.85	27.94
85	89	15,670	7,875	15.50	9.81	9.64	13.01	9.61	9.90	6.09	3.18	18.09	27.08
90	+	6,225	3,070	12.90	9.67	6.86	9.53	8.54	10.31	6.70	4.10	16.51	24.57

Table 3.8: Scales of increase rates

	Medium population		
Year	Slow (%)	Accelerated (%)	Immediate (%)
2006	18.0	18.0	18.0
2007	18.0	18.0	18.0
2008	17.0	16.5	8.0
2009	16.0	15.0	8.0
2010	15.0	13.5	8.0
2011	14.0	12.0	8.0
2012	13.0	10.5	8.0
2013	12.0	9.0	8.0
2014	11.0	8.0	8.0
2015	10.0	8.0	8.0
2016	9.0	8.0	8.0
2017	8.0	8.0	8.0
2018	8.0	8.0	8.0
2019	8.0	8.0	8.0
2020	8.0	8.0	8.0

	Low population	High population
Year	Accelerated (%)	Accelerated (%)
2006	18.0	18.0
2007	18.0	18.0
2008	16.5	16.5
2009	15.0	15.0
2010	13.5	13.5
2011	12.0	12.0
2012	10.5	10.5
2013	9.0	9.0
2014	7.5	8.5
2015	7.5	8.5
2016	7.5	8.5
2017	7.5	8.5
2018	7.5	8.5
2019	7.5	8.5
2020	7.5	8.5

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[1] "Alberta Government Historical Fiscal Summary 1986-87 to 2007-08." http://www.finance.gov.ab.ca/publications/budget/budget2005/fiscal66.gif

[2] Clark, Kara L. (2003). The Group Insurance Marketplace in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT, p. 3-5.

[3] Cumming, Robert B. (2003). Management of Provider Networks in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT. p. 931-951. Johnson, Allison. Medical Care Management in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT, p. 931-951.

[4] Jacobson, Paul. (February 2004). Some Basic Insurance Concepts, *Fraser Forum*, Fraser Institute, p. 6.

[5] This is often referred to as anti-selection. See Khemani, Ashim. (2004). *Canadian Group Insurance Benefits, A Practitioners Guide and Reference Manual*, Financial Advisors Association of Canada.

[6] Knapp, Darrell D. (2003). Medical Benefits in the United States in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT, p. 104-107.

[7] Health Canada. (November 25, 2002). *Canada Health Act Overview.*

[8] The most extensive experiment on cost sharing is summarized in Keeler, Emmet B. (Summer, 1992). *Effects of Cost Sharing on Use of Medical Services and Health*, Journal of Medical Practice Management, Vol. 8. p. 317-321.

[9] Johnson, Allison. (2003). Medical Care Management in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT, p. 931-951.

[10] This is a concept where the adoption from life to health insurance is somewhat controversial. Pre-funding is often referred to as gross level premium. For a brief discussion see Cumming, Robert B. (2003). Actuarial Certification of Reserves in William F. Bluhm, principal editor, *Group Insurance*, ACTEX Publications Inc., Winsted, CT, p. 405-406.

[11] Alberta Finance projections modified to reflect projected mortality improvements.

[12] Intergenerational fairness was a key evaluation criteria in the Kirby Report. (October 2002). *The Health of Canadians – The Federal Role;* Final *Report; Volume Six: Recommendations for Reform*, The Standing Senate Committee on Social Affairs, Science and Technology. See Chapter 15.

[13] Khemani, Ashim, *supra*, note 5, this is the application of that dynamic.

[14] This section provides a high-level description of this model. A more detailed description is contained in the Appendix.

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[15] Long-Term Care Facilities Information Package. (June 13, 2005 (Draft)). A Background Document for the Task Force on Continuing Care Health Service and Accommodation Standards.

[16] Seniors Supportive Living Framework. (June 13, 2005 (Draft)). A Background Document for the Task Force on Continuing Care Health Service and Accommodation Standards.

[17] The RCCM model is a tool used by Alberta Health and Wellness to project continuing care needs, expenses and capital requirements.

[18] This was based on discussions with experts at Alberta Health and Wellness.

[19] This was based on discussions with experts at Alberta Health and Wellness.

[20] See anti-selection discussion in the Conceptual Models section.

[21] Organization for Economic Co-operation and Development (OECD). (2004). Towards High-Performing Health Systems, and Mintel International Group Ltd. (September 2005). Private Medical Insurance.

[22] See anti-selection discussion in the Conceptual Models section.

[23] Data provided by Alberta Health and Wellness to Aon Consulting as part of the project mandate.

[24] Canadian Institute for Health Information. (May 2005.) "Provincial and Territorial Government Health Expenditures By Age Group, Sex and Major Category: Recent and Future Growth Rates."

[25] *Ibid.*

[26] Canadian Institute for Health Information. (December 2005). Health Expenditure by Use of Funds, by Year, by Source of Finance, by Province/Territory and Canada 1975-2005 – Current Dollar.

[27] To be consistent with the model currently used by Alberta Finance, health care productivity has been defined as a function of GDP divided by working hours.